

**UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

**IN RE: NATIONAL COLLEGIATE
ATHLETIC ASSOCIATION STUDENT-
ATHLETE CONCUSSION LITIGATION**

MDL NO. 2492

Master Docket No. 13-cv-09116

Judge John Z. Lee

Magistrate Judge Geraldine Soat
Brown

**REPORT OF ROBERT C. CANTU, M.A., M.D., F.A.C.S., F.A.C.S.M. IN SUPPORT OF
PLAINTIFFS' MOTION FOR PRELIMINARY APPROVAL OF SETTLEMENT**

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I. QUALIFICATIONS

1. I am a physician licensed by the States of Massachusetts and California to practice medicine. I have been practicing medicine in Massachusetts since 1964 and have practiced in the specialty of Neurosurgery now for over 45 years. I have been Chief of the Neurosurgery Service at the Emerson Hospital in suburban Boston since 1968. I have acquired over the last 30 years particular expertise in sports related athletic cervical spine and head injuries from the following activities.

2. I have authored over 385 publications in the form of book chapters, refereed peer reviewed articles, books, abstracts and free communications as well as educational videos. Many of those publications have been specifically on the topic of athletic head injuries, epidemiology, diagnosis, treatment, rehabilitation, and prevention.

3. Over the last 30 years I have given hundreds of lectures and spoken and participated in hundreds of scientific meetings devoted to athletic injuries including head injuries.

4. I am currently an Adjunct Professor of Exercise and Sports Science at the University of North Carolina, Chapel Hill, North Carolina.

5. For over two decades, I have served as the Medical Director of the National Center for Catastrophic Sports Injury Research, an ongoing registry instituted in 1982 for data collection and analysis of predominantly head and cervical spine injuries.

6. I am currently a Senior Advisor to the Brain Injury Center at Children's Hospital in Boston, MA, and to the National Football League's Head Neck and Spine Committee.

7. I am a Clinical Professor of Neurosurgery and Neurology at Boston University School of Medicine, Boston, MA.

8. I am a Co-founder and investigator of the CTE Center at Boston University Medical Center, Boston, MA.

9. Since 1994, I have served on the Board of Trustees of the National Operating Committee on Standards for Athletic Equipment (NOCSAE) and the last eight years served as its Vice President. This organization is responsible for establishing standards for football helmets as well as other athletic equipment.

10. For many years, I have been involved with the American College of Sports Medicine and have served on the Board of Trustees of that organization for more than 10 years and have also served as President of the American College of Sports Medicine from 1992 to 1993 and Treasurer from 1996 to 1999.

11. I was a member of the Advisory Committee for Injury Prevention, Centers for Disease Control, Atlanta, Georgia from 1998 to 2001.

12. I was a member of the Executive Committee, Joint Section of Trauma, Congress of Neurological Surgeons/American Association of Neurological Surgeons 2000-2002.

13. I have served as a consultant to many scholastic and professional athletes following severe cervical spine injuries regarding return to play issues and have also served as treating physician to a number of scholastic and professional athletes who have sustained head injuries.

14. I have on numerous occasions authored textbook chapters and articles discussing the causes epidemiology, biomechanics and pathophysiology of athletic head injuries.

15. Attached as Appendix A is my most recent Curriculum Vitae, which includes a list of my publications in the last ten years.

16. My opinions are based upon my specialized knowledge, skill, experience and education in the field of concussion management. My opinions are based on the data and articles described herein and I have applied reliable principles to reach my conclusions.

II. BACKGROUND ON CONCUSSIONS

17. The information in this Section II is provided for background purposes regarding the injuries at issue, their symptoms, and the risks associated with concussions and the accumulation of subconcussive hits. I understand that this information is also being used in the Long-Form Notice and on the Settlement website in order to educate Settlement Class Members.

A. What Is A Concussion?

1. Medical description

18. Concussion or mild traumatic brain injury (mTBI) has been defined as “a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.” Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted to the head. Concussions can be defined by the clinical features, pathophysiological changes and/or biomechanical forces that occur, and these have been described in the literature. The neurochemical and neurometabolic changes that occur in concussive injury have been explained.

19. Most commonly, concussion is characterized by the rapid onset of cognitive impairment that is self-limited and spontaneously resolves. The acute symptoms of concussion, listed below, are felt in most instances to reflect a functional disturbance in cognitive function instead of structural abnormalities. When structural abnormalities occur they are usually at the microscopic level, which is why diagnostic tests such as routine magnetic resonance imaging (MRI) and computerized tomography (CT) scans are most often normal. These studies may have

their role in assessing and evaluating the head-injured athlete whenever there is concern for the associated injuries of skull fracture, intracranial bleeding and seizures, when there is concern for macroscopic structural abnormalities or when the symptoms of an athlete persist or deteriorate.

20. Concussion is associated with clinical scenarios that often clear spontaneously, and may or may not be associated with loss of consciousness (LOC).

2. How concussions occur in sports

21. Concussions occur when linear and rotational accelerations are imparted to the brain from either direct impacts to the head or indirect impacts that whiplash the head. During the course of a college football season studies have shown athletes receiving more than 1,000 impacts greater than 10 G force which is slightly more than a fighter pilot receives doing maximal maneuvers. The mean of all football related hits to the head exceed 20 G force.

22. While helmets, and to a lesser extent protective head gear, are effective in virtually eliminating skull fractures and dramatically reducing linear forces, they are ineffective in reducing the rotational forces that result in a concussion.

3. Metabolic changes

23. After concussion, there is a significant K⁺ ion efflux from cells, owing to mechanical membrane disruption, axonal stretch, and opening of voltage-dependent K⁺ channels. Nonspecific depolarization of neurons leads to release of the excitatory neurotransmitter glutamate, which compounds the K⁺ flux by activating N-methyl-D-aspartate (NMDA) and D-amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid (AMPA) receptors. In an attempt to restore the membrane potential, the Na⁺, K⁺-ATPase works overtime, consuming increasing amounts of ATP. To meet these elevated ATP requirements, there is a marked

upregulation of cellular glycolysis, which occurs within minutes after a concussion. During this period of hyperglycolysis, there is a commensurate increase in lactate production.

24. In addition to K^+ efflux, NMDA receptor activation permits a rapid and sustained influx of Ca^{2+} . Elevated intracellular Ca^{2+} can be sequestered in mitochondria, eventually leading to dysfunction of oxidative metabolism and further increasing the cell's dependence on glycolysis-generated ATP. Calcium accumulation may also activate proteases that eventually lead to cell damage or death, and, in axons, excess Ca^{2+} can lead to dysfunction and breakdown of neurofilaments and microtubules.

25. These ionic shifts and acute alterations in cellular energy metabolism occur in a posttraumatic setting where cerebral blood flow (CBF) is diminished, although not to ischemic levels. Rather, it is the mismatch between glucose delivery and glucose consumption that may predispose to secondary injury. CBF may remain depressed for several days after TBI, possibly limiting the ability of the brain to respond adequately to subsequent perturbations in energy demand.

26. After the initial period of profound post-injury ionic disturbance and resultant increase in glucose metabolism, the local cerebral metabolic rate for glucose decreases significantly below baseline, as does oxidative metabolism. Then gradually in most instance of concussion these metabolic changes revert to baseline over a 10 day period

4. Rest is the hallmark of concussion therapy

27. Physical and cognitive rest is the hallmark of initial concussion management. Either physical or cognitive exertion may greatly exacerbate concussion symptoms and retard recovery. This is a major problem for student athletes who need to perform in the classroom yet may be prevented from doing so by their concussion.

B. Subconcussive Hits

28. Subconcussive hits, or impacts that do not produce any clinical concussion symptoms, may also adversely affect cerebral function.¹ Evidence that subconcussive hits may adversely affect cerebral function has been reflected in documented changes in cerebral function (i.e., visual working memory declines), and altered dorsolateral prefrontal cortex activation as assessed by functional magnetic resonance imaging in high school football athletes in the absence of clinical signs of concussion.² In lay terms, the study on high school football players found that players who received normal football brain trauma and did not report any concussion symptoms still had functional MRI changes that mimicked concussed players.³

29. Similarly, in a study of college football players released in 2013, researchers found that the more hits to the head a player absorbed, the higher the levels of a particular brain protein, S100B, that is known to leak into the bloodstream after a head injury. Even though none of the football players in the study suffered a concussion during the season, four of them showed signs of an autoimmune response that has been associated with brain disorders. Brain scans (using diffusion tensor imaging) confirmed that the presence of S100B antibodies in the players' blood correlated with brain tissue damage, comparable to what one typically observes in the scan of a concussion victim.

30. Some studies have suggested that concussions or a combination of concussions and sub-concussive head impacts may lead to conditions such as chronic traumatic encephalopathy,⁴ mild cognitive impairment,⁵ and/or depression.⁶

C. Second Impact Syndrome

31. What Saunders and Harbaugh⁷ called “the second-impact syndrome of catastrophic head injury” in 1984 was described by Schneider in 1973.⁸ The syndrome occurs

when an athlete who sustains a head injury – often a concussion or worse injury, such as a cerebral contusion – sustains a second head injury before symptoms associated with the first have cleared.^{9,10,11}

32. Typically, the athlete suffers postconcussion symptoms after the first head injury. These may include headache, labyrinthine dysfunction, visual, motor, or sensory changes or mental difficulty, especially the thought and memory process. Before these symptoms resolve, which may take days or weeks, the athlete returns to competition and receives a second blow to the head.

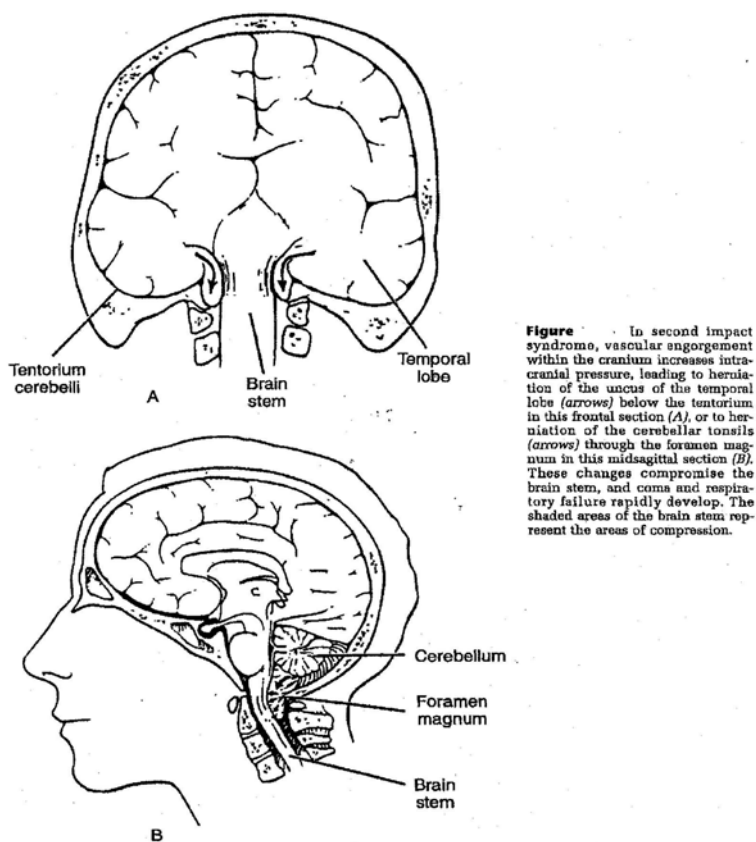
33. The second blow may be remarkably minor, perhaps only involving a blow to the chest that jerks the athlete's head and indirectly imparts accelerative forces to the brain. Affected athletes may appear stunned but usually do not lose consciousness and often complete the play. They usually remain on their feet for 15 seconds to one minute or so but seem dazed. Often, affected athletes remain on the playing field or walk off under their own power.

34. What happens in the next 15 seconds to several minutes sets this syndrome apart from a concussion. Usually within seconds to minutes of the second impact, the athlete – conscious yet stunned – quite precipitously collapses to the ground, semicomatose with rapidly dilating pupils, loss of eye movement, and evidence of respiratory failure.

35. The pathophysiology of SIS is thought to involve a loss of autoregulation of the brain's blood supply. This loss of autoregulation leads to vascular engorgement within the cranium, which, in turn, markedly increases intracranial pressure and leads to herniation either of the medial surface (uncus) of the temporal lobe or lobes below the tentorium of the cerebellar tonsils through the foramen magnum (Fig. 1). Animal research has shown that vascular engorgement of the brain after a mild head injury is difficult, if not impossible, to control.^{12,13}

The usual time from second impact to brainstem failure is rapid, taking 2 to 5 minutes. Once brain herniation and brainstem compromise occur, ocular involvement and respiratory failure precipitously ensue. Demise occurs far more rapidly than usually seen with an epidural hematoma. MR imaging and CT scan are the neuroimaging studies most likely to demonstrate the SIS. Although MR imaging is the more sensitive to traumatic brain injuries, especially true edema,^{14,15} the CT scan is usually adequate to show bleeding or midline shifts of the brain requiring neurosurgical intervention.

Figure 1



36. While second impact syndrome typically does not occur with intracranial bleeding, a number of cases of second impact syndrome have been reported where acute

hemisphere swelling has occurred in association with a thin subdural hematoma in athletes receiving the second injury while still symptomatic from the first.¹⁶

D. Post-Concussion Syndrome

37. When post-concussion symptoms persist beyond a month, most refer to this condition as post-concussion syndrome (PCS). PCS symptoms can include headaches, fatigue, memory problems, feeling in a fog, depression, impulsivity, and other physical, cognitive, mood, and behavioral problems. There may be treatments that can alleviate some or all of these symptoms and in almost all cases they resolve eventually.

38. PCS can be thought of as a very severe concussion and its presence should be recorded in the medical record. Persistent PCS beyond a year is felt by some to be a contraindication to ever return to a collision sport. While most cases of PCS eventually recover, not every case does recover. The connection between persistent cases of PCS and chronic traumatic encephalopathy at this time is not clear.

E. Chronic Traumatic Encephalopathy

39. Repetitive mild traumatic brain injury can trigger the development of chronic traumatic encephalopathy (CTE), a progressive neuro-degeneration characterized by the widespread deposition of hyperphosphorylated tau (p-tau) as neurofibrillary tangles.¹⁷ CTE was originally reported in 1928 by Harrison Martland a New Jersey pathologist, who described the clinical aspects of a progressive neurological deterioration ('punch drunk') that occurred after repetitive brain trauma in boxers.¹⁸ Although originally termed 'dementia pugilistica,'¹⁹ the recognition that activities other than boxing were associated with its development lead to the preferred use of terms such as progressive traumatic encephalopathy and later, CTE.²⁰

40. CTE may manifest in cognitive, mood, behavioral, and motor disorders and is clinically associated with symptoms of irritability, impulsivity, aggression, depression, short-term memory loss and heightened suicidality.²¹

41. Often there can be a delay of years or even decades between the end of the repetitive head impacts (i.e., the end of playing the contact sport) and the beginning of the symptoms. CTE often presents with recent memory loss and other cognitive impairments similar to those experienced by people with Alzheimer's disease. People with CTE can also have changes in behavior (e.g., impulsivity, rage, aggression, having a short fuse) and mood (e.g., depression, hopelessness, feeling suicidal). Less commonly there can be movement disorders such as parkinsonism (e.g., tremor, difficulty walking or speaking, stiffness). Some people with CTE may first have behavior or mood problems. Others may first have cognitive difficulties, with the changes in mood and behavior later.

42. With advancing disease, more severe neurological changes develop that include dementia, gait and speech abnormalities and Parkinsonism. In late stages, CTE may be clinically mistaken for Alzheimer's disease or frontotemporal dementia.²² A subset of cases with CTE is associated with motor neuron disease (MND)²³ that could be diagnosed clinically as Amyotrophic Lateral Sclerosis (ALS) or "Lou Gehrig's Disease."

43. The neuropathological changes of CTE are distinctive and easily distinguished from other tauopathies, including Alzheimer's disease and frontotemporal dementia. With CTE there is atrophy of the cerebral cortex, medial temporal lobe, diencephalon and mammillary bodies with enlarged ventricles; cavum septum pellucidum, often with fenestrations; extensive p-tau-immunoreactive neurofibrillary tangles and astrocytic tangles in the frontal and temporal cortices, particularly around small cerebral vessels and at the depths of cerebral sulci; extensive

p-tau-immunoreactive neurofibrillary tangles in limbic regions, diencephalon and brainstem nuclei; extensive degeneration of axons and white matter fibre bundles; TAR DNA-binding protein 43 (TDP-43) immunoreactive intraneuronal and intragial inclusions occur in most cases with absent or minimal amyloid-B peptide deposits.²⁴

44. In 2008, the Center for the Study of Traumatic Encephalopathy (CSTE) at Boston University School of Medicine established the CSTE brain bank at the Bedford VA Hospital under the direction of Dr. Ann McKee to analyse the brain and spinal cords after death of athletes, military veterans and civilians who experienced repetitive mild traumatic brain injury. Through this effort, we comprehensively analysed the brain and spinal cord of 85 donors for evidence of CTE, as well as for all other neurodegenerative diseases, including Alzheimer's disease, frontotemporal lobar degeneration (FTLD), Parkinson's disease, Lewy body disease and multiple system atrophy.

45. We reported this series in the journal Brain.²⁵ CTE was found in 68 of 85 cases including 64 athletes, 21 military veterans, and one individual who indulged in self injurious head banging behavior. Of the athletes 49 were football players, 34 were former professional football players, nine had played only college football, and six had played only high school football. At this time the incidence and prevalence of CTE is not known. Neither are the genetic and environmental factors that may predispose one suffering multiple repetitive mild traumatic brain trauma to develop CTE.

III. PARTICIPATION IN MEDIATION PROCESS

46. I was asked by Plaintiffs to consult with them and various other medical, epidemiological, actuarial, and economic experts throughout the course of settlement negotiations. It is my opinion that the changes to the NCAA's concussion management and

return-to-play guidelines are consistent with consensus best practices. I further believe that the proposed Medical Monitoring Program provides an appropriate diagnostic remedy for current or former NCAA student-athletes at risk for PCS or mid- to late-life onset problems associated with CTE. Without waiver of the mediation privilege, I describe below the reasons for my views.

IV. MY OPINION OF THE AGREED CHANGES TO THE NCAA'S CONCUSSION MANAGEMENT AND RETURN TO PLAY GUIDELINES

A. Baseline Testing

47. Baseline testing is recognized as desirable by clinicians. When normative data is available it is recognized that it is best to compare one's performance to one's own baseline. This is true whether we are speaking of neuropsychological testing, balance testing, or other aspects of the neurological examination. For instance, if one's balance or intellect is extremely superior, this athlete could be impaired and yet score in the average range. Only by having a baseline in the superior range would one see this deterioration. This baseline testing is very desirable and should be offered whenever possible.

48. During the course of discovery, I learned that baseline testing was not mandated by the NCAA and was inconsistently conducted at member institutions at best. The NCAA's failure to require formal baseline testing was against consensus best practices. Without a formal baseline, it is very difficult for a physician to determine when a patient has recovered. And returning a student-athlete to play before they are fully recovered negligently puts them at risk for permanent brain injury. There is not a single good reason for not requiring all student-athletes to undergo baseline testing.

49. In my opinion, based upon review of documents, the NCAA has acknowledged internally that it has violated its duty of care. The NCAA knows, for example, that only 66% of schools performed baseline testing; yet the NCAA did not previously mandate baseline testing.

The NCAA knows that less than 50% of schools require a concussed athlete to see a physician; yet the NCAA had not corrected this violation of the consensus best practices.

50. As part of this Settlement, the NCAA has agreed to mandate the following:

Every student-athlete at every NCAA member institution will undergo pre-season baseline testing for each sport in which they participate prior to participating in practice or competition.

This is a significant step that will provide appropriate clinical data to the clinician after a student has been concussed that may be used to determine, among other things, whether or when the student-athlete has recovered and may return to play.

B. No Same Day Return to Play

51. Consensus about concussion management was reached in 2002 – and reinforced with each subsequent International Consensus Statement – that athletes suffering concussion symptoms should never be returned to play in the same game, and that coaches, players, trainers and physicians should follow a systematic return to play policy that includes systematic and graded return to exertion following injury, systematic reevaluation of symptoms following each exertional state, and a collective understanding that the patient is completely asymptomatic at rest, asymptomatic with exertion, and has intact neurocognitive performance prior to final clearance.

52. During the course of discovery, I learned that 39% of NCAA member institutions which voluntarily responded to a NCAA-conducted survey did not have established return to play guidelines.²⁶ Even for those schools that had return to play guidelines, many were following old guidelines.²⁷ Moreover, “nearly one-half also responded that they will allow a student-athlete to return-to-play in the same game after a concussion diagnosis.”²⁸

53. As part of this Settlement, the NCAA has agreed to mandate the following:

A student-athlete who has been diagnosed with a concussion will be prohibited from returning to play or participating in any practice or game on the same day on which he or she sustained such concussion.

This agreement thus mandates that NCAA member institutions finally implement and enforcement consensus standards that are more than a decade old. In my opinion, this is a very important achievement in the Settlement.

C. Clearance by a Physician

54. In my opinion, all schools should have a physician see athletes who received a concussion or are exhibiting concussion symptoms. My opinion is confirmed by the 2004 National Athletic Trainers' Association ("NATA") Position Statement which requires referral to a physician when enumerated symptoms are present.

55. The 2004 NATA Position Statement provides that an athletic trainer is supposed to refer the athlete to a physician on the day of the injury if the athlete experienced any of the following symptoms:

Day-of-injury referral	14. Motor deficits subsequent to initial on-field assessment
1. Loss of consciousness on the field	15. Sensory deficits subsequent to initial on-field assessment
2. Amnesia lasting longer than 15 min	16. Balance deficits subsequent to initial on-field assessment
3. Deterioration of neurologic function*	17. Cranial nerve deficits subsequent to initial on-field assessment
4. Decreasing level of consciousness*	18. Postconcussion symptoms that worsen
5. Decrease or irregularity in respirations*	19. Additional postconcussion symptoms as compared with those on the field
6. Decrease or irregularity in pulse*	20. Athlete is still symptomatic at the end of the game (especially at high school level)
7. Increase in blood pressure	
8. Unequal, dilated, or unreactive pupils*	
9. Cranial nerve deficits	
10. Any signs or symptoms of associated injuries, spine or skull fracture, or bleeding*	Delayed referral (after the day of injury)
11. Mental status changes: lethargy, difficulty maintaining arousal, confusion, or agitation*	1. Any of the findings in the day-of-injury referral category
12. Seizure activity*	2. Postconcussion symptoms worsen or do not improve over time
13. Vomiting	3. Increase in the number of postconcussion symptoms reported
	4. Postconcussion symptoms begin to interfere with the athlete's daily activities (ie, sleep disturbances or cognitive difficulties)

*Requires that the athlete be transported immediately to the nearest emergency department.

56. Yet, during the course of discovery, I learned that less than 50% of all NCAA schools confirmed that “a physician is required to see all student-athletes with a concussion.” (emphasis in original.)²⁹ Discovery revealed the NCAA did not require that all teams have physicians or that referrals to physicians be made. The NCAA’s failure to require physician involvement or to require that an athlete with concussion symptoms be seen by medical personnel experienced in concussion management was not in accordance with consensus best practices.

57. As part of this Settlement, the NCAA has agreed to mandate the following:

Any student-athlete diagnosed with a concussion by medical personnel must be cleared by a physician before being permitted to return to play in practice or competition.

This agreement thus mandates that NCAA member institutions finally implement and enforcement consensus standards that have been recognized since 2004. In my opinion, this is another important achievement in the Settlement.

D. Medical Personnel for Contact Sports Games and Practices

58. In my opinion, leaving discretion of return to play for a student-athlete that had suffered a concussion or displayed concussion symptoms to an individual member institution's "medical staff" without regard to whether the staff included physicians or personnel with specific expertise in concussion diagnosis, treatment, and management is against consensus best practices.

59. During the course of discovery, I became aware of many instances where this discretion was left to untrained personnel.

60. As part of this Settlement, the NCAA has agreed to the following provisions:

Member institutions shall ensure that medical personnel with training in the diagnosis, treatment and management of concussion are present at all Contact Sports games for Divisions I, II and III.

Member institutions shall ensure that medical personnel with training in the diagnosis, treatment and management of concussion are available at all Contact Sports practices for Divisions I, II and III.

61. It is my opinion that these provisions will provide immediate benefit to concussed athletes and to athletes who display symptoms on the field but may not otherwise receive medical attention absent the presence of medical personnel with training in the diagnosis, treatment and management of concussion.

E. NCAA Tracking of Concussions and Resolutions

62. It is my opinion that all organized sports associations should track concussions and implement changes in how a sport is played with the goal of lowering the incidence of concussion and subconcussive hits.

63. During the course of discovery, I reviewed certain documents produced by the NCAA that summarize data collected by the NCAA Injury Surveillance System (ISS), which is a

voluntary reporting system.³⁰ Using this data, in 2007, the NCAA furthered its knowledge regarding the commonality of concussions among its student-athletes. In a series of articles co-authored by the NCAA's Randy Dick and published in the *Journal of Athletic Training*, Dick reviewed the NCAA's injury surveillance data from 1988-1989 to 2003-2004 across men's and women's sports in order to identify potential areas for injury prevention initiatives.

64. However, the ISS data is incomplete and does not mandate reporting. Without complete data, injury prevention initiatives have not gone far enough and have not had sufficient support within the NCAA as an organization.

65. As part of this Settlement, the NCAA has agreed to the following provisions:

The NCAA will create a reporting process through which member institutions will report to the NCAA instances of diagnosed concussions in student-athletes and their resolution.

The NCAA will create a reporting mechanism through which third parties, such as student-athletes and/or their parents, can report concerns about concussion management issues to the NCAA.

66. It is my opinion that these provisions will enable the NCAA to receive complete information on both a systemic and individual basis to identify problems in the way sports are played, putting student-athletes at risk, as well as the way concussions are handled. Moreover, individual reporting will provide the opportunity for the NCAA to ensure that consensus best practices are followed in the management of concussion and return to play decisions.

F. Education Regarding Academic Accommodations

67. Physical and cognitive rest is the hallmark of initial concussion management. Either physical or cognitive exertion may greatly exacerbate concussion symptoms and retard recovery. This is a major problem for student athletes who need to perform in the classroom yet may be prevented from doing so by their concussion.

68. Thus, by way of example, the American College of Sports Medicine's Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement - 2011 Update provided that: "It is *desirable* the team physician: ... Facilitate academic accommodations for symptomatic student athletes."³¹ (emphasis in original).

69. In addition, in 2011, the Ivy League highlighted the need for academic accommodations after concussive injury as "extremely critical" because cognitive and physical rest are essential aspects of the recovery process. The Ivy League recommended that Ivy League Presidents communicate with the deans at each campus to ensure that they were aware of the need for appropriate academic accommodations for concussed athletes.

70. As part of this Settlement, the NCAA has agreed to mandate the following:

At the beginning of each academic year, the NCAA will provide member institutions with educational materials for faculty regarding academic accommodations that may be advisable to accommodate student-athletes who have sustained concussions. Such educational materials shall be provided annually throughout the Medical Monitoring Period.

It is my opinion that this provision is an important step that will help provide concussed athletes with the cognitive rest necessary for recovery, as well as reduce the punitive consequences of missed schoolwork, short-term memory deficits that impact test-taking, and other obstacles to success in the classroom as a result of concussions.

G. Concussion Education and Training

71. The International Consensus Statements emphasize that: "As the ability to treat or reduce the effects of concussive injury after the event is minimal, education of athletes, colleagues and the general public is a mainstay of progress in this field. Athletes, referees, administrators, parents, coaches and healthcare providers must be educated regarding the

detection of concussion, its clinical features, assessment techniques and principles of safe return to play.”³²

72. In fact, the first International Consensus Statement in 2002 provided: “Athletes and their healthcare providers must be taught how to detect concussion, its clinical features, assessment techniques, and principles of safe return to play. Methods to improve education including various web based resources (for example, www.concussionsafety.com), educational videos, outreach programmes, concussion working groups, and the support and endorsement of enlightened sport groups such as FIFA, IOC, and IIHF who initiated this endeavour have enormous value and must be pursued vigorously.”

73. Yet, I learned during discovery that the NCAA’s Sports Medicine Handbooks made no mention of concussion education techniques for coaches, trainers, students or parents. Moreover, the NCAA admitted that many of its coaches and athletic trainers “are not up to date when it comes to concussion.”³³

74. As part of this Settlement, the NCAA has agreed to mandate the following:

The NCAA will require that member institutions provide concussion education and training approved by the NCAA to student-athletes, coaches and athletic trainers before every season for the duration of the Medical Monitoring Period.

It is my opinion that this is a significant change that will bring the NCAA’s practices in line with consensus best practices and aid in the detection of concussion and its proper management.

V. MEDICAL MONITORING FOR CURRENT AND FORMER NCAA STUDENT ATHLETES

A. The Purpose of a Medical Monitoring Program for NCAA Student-Athletes

75. Concussions and sub-concussive hits that are unrecognized put student athletes at considerable risk of potentially catastrophic sequelae from re-injury. Repetitive head trauma

(whether concussion or subconcussive hits) from participation in contact sports such as soccer, ice hockey, basketball, field hockey, lacrosse and wrestling can lead to a permanent decrease in brain function, including: memory loss, CTE, movement disorders such as parkinsonism, and emotional disturbances. Also, as discussed above, one of the most notable complications of concussion is second impact syndrome. In this syndrome, an athlete who is recovering from an initial concussion sustains a subsequent concussive injury, resulting in diffuse brain swelling and severe, permanent neurological dysfunction or death. Thus, timely diagnosis and prompt treatment can help prevent more serious concussion complications.

76. Here, the purpose of a medical monitoring program of current and former student-athletes that have played NCAA sports is to determine whether they are suffering from post-concussion syndrome or other mid- to late-life cognitive impairments or mental disturbances. Student-athletes may not have any idea that the debilitating symptoms that they are experiencing were caused by their head injuries – and thus are not seeking the available treatments that they need to ease their symptoms associated with their head injuries.

77. For example, armed with a diagnosis of post-concussion syndrome, student-athletes will be able to seek the intervention and treatment they need. Treatment of post-concussion syndrome focuses on helping the person return to an active, functional lifestyle. Treatment incorporates physical and cognitive therapy programs to help alleviate difficulties associated with mild traumatic brain injury. It may include physical therapy for difficulties with motion and vestibular sensitivity; occupational therapy to address daily activities and functional vision deficits; speech and language therapy to improve language skills and cognitive deficits; and psychological counseling to cope with concerns at home, work or school. I also prescribe

medication in cases that fail to respond to physical and cognitive rest alone, plus the above interventions. This is especially true when one symptom dominates all other symptoms.

78. Post-concussion syndrome treatments are aimed at easing specific symptoms in order to allow the injured person to lead a more normal life. Moreover, the symptoms of post-concussion syndrome often improve after the affected person learns that there is a cause for his or her symptoms, and that they may improve with time. Education about the disorder can ease a person's fears and help provide peace of mind.

79. For example, one symptom of post-concussion syndrome is headaches. Many student-athletes with headaches may try to self-medicate, but overuse of over-the-counter and prescription pain relievers may actually contribute to persistent post-concussion headaches. Thus, a diagnosis of post-concussion syndrome will allow a student-athlete to seek proper treatment for their headaches. Medications commonly used for migraines or tension headaches, including some antidepressants, appear to be effective when these types of headaches are associated with post-concussion syndrome. These medications may include Amitriptyline, which is a medication that has been widely used for post-traumatic injuries, as well as for symptoms commonly associated with post-concussion syndrome, such as irritability, dizziness and depression. Nortriptyline, Propranolol, or Verapamil can also help greatly.

80. Another symptom of post-concussion syndrome is a problem with memory and thinking (such as an inability to organize or multi-task). Student-athletes with these problems may believe that they are suffering from ADD or ADHD, but in fact with an appropriate diagnosis could obtain cognitive therapy. Cognitive rehabilitation can address thinking problems through a number of treatment approaches.

81. Cognitive rehabilitation may include education in order to improve an individual's understanding of thinking processes. With increased awareness, people may start to feel a sense of control and support and will realize their symptoms are not uncommon.

82. Cognitive rehabilitation may include compensating. Therapists can provide individuals with practical ideas they can implement to compensate for cognitive difficulties. These suggestions are tailored to meet each person's specific needs for improving functioning at home, work and/or school. The use of memory aids and time management techniques are examples of compensatory strategies.

83. Cognitive rehabilitation may include process-specific training, which consists of intensive exercises designed to provide repetitive practice in identified problem areas such as attention. Through this practice, individuals develop a greater understanding of where breakdowns occur and how to manage them outside of the treatment setting. The overall goal of cognitive therapy is to increase the individual's ability to meet the demands of daily life.

84. For difficult cognitive or thought symptoms (feeling in a fog) or problems with concentration or memory, the neurostimulants in the methylphenidate group – Ritalin, Adderall, Concerta, Strattera, and Amantadine – can also be very beneficial. Other symptoms of post-concussion syndrome include depression and anxiety. Some treatment options include psychotherapy and/or medication, such as Lexapro or Zoloft. Trouble falling asleep can be helped by melatonin and the prescription medications Trazodone or Ambien. Other non-medicinal therapies that are employed with success in post-concussion syndrome include vestibular therapy (head and eye exercises) if dizziness or balance are primary symptoms, and upper cervical spine physical therapy for pain in the upper neck and back of the head.

85. Ultimately, the goal of a medical monitoring program, in determining whether a student-athlete has post-concussion syndrome or other mid- to late-onset impairments associated with head trauma, is to provide the student-athlete with the information that they need to seek treatment outside the confines of this medical monitoring program.

B. Recommended Medical Monitoring Program

86. In my opinion, based on my experience and consensus best practices, the Medical Monitoring Program described in the Settlement Agreement, and subject to oversight of the Medical Science Committee, fits the purposes for which it is being formed and meets the standard of care.

87. All of the information gathered from a Medical Evaluation will be collectively evaluated by a physician skilled in the diagnosis, treatment and management of concussions and the results and/or diagnosis communicated to the Settlement Class Member. Moreover, at each follow-up examination, the Settlement Class Member's status will be compared to the baseline or prior results, thus providing the physician with crucial information regarding deterioration or new symptoms of which the student-athlete may not otherwise be aware.

88. Armed with the results and/or diagnosis, the Settlement Class Member will then be in a position to seek treatment appropriate to the diagnosis and be knowledgeable about the effects, if any, of concussions or subconcussive hits sustained at NCAA schools.

89. Based on my experience and the consensus in the medical and scientific communities, it is my opinion that the Medical Monitoring Program meets the standard of care and/or is best practice for the assessment and diagnosis of individuals that have played sports at NCAA member institutions.

90. It is also my opinion, based on the NCAA injury data, that thousands of athletes have suffered concussions and subconcussive hits while playing NCAA sports and have done so under the NCAA's inadequate Concussion Management Plan. In these circumstances a medical monitoring program is appropriate.

VI. CONCLUSION

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Dated: July 21, 2014



ROBERT C. CANTU, M.A., M.D., F.A.C.S., F.A.C.S.M.
F.A.A.N.S.

¹ Gavett et al., 2011; McKee et al., 2009.

² Talvage et al., 2010.

³ Talvage et al., 2010.

⁴ Gavett et al., 2011

⁵ Guskiewicz et al., 2005.

⁶ Guskiewicz et al., 2007a.

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¹¹ McQuillen JB, McQuillen EN, Morrow P: Trauma, sports, and malignant cerebral edema. *Am J Forensic Med Pathol* 9:12, 1988.

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¹⁶ Mori T, Katayama Y, Katayama T: Acute hemisphere swelling associated with thin subdural hematomas: pathophysiology of repetitive head injury in sports. *Acta Neurochir* 96:40-43, 2006.

¹⁷ Corsellis and Brierley, 1959; Corsellis et al., 1973; Hof et al., 1991; Geddes et al., 1999; Omalu et al., 2005, 2006, 2010; McKee et al., 2009, 2010; Gavett et al., 2010, 2011; Daneshvar et al., 2011a, b; Costanza et al., 2011; Stern et al., 2011; Goldstein et al., 2012; Saing et al., 2012.

¹⁸ Martland, 1928

¹⁹ Millspaugh, 1937

²⁰ Critchley, 1949; 1957

²¹ McKee et al., 2009

²² Gavett et al., 2010, 2011.

²³ McKee et al., 2010

²⁴ Corsellis and Brierley, 1959; Corsellis et al., 1973; Hof et al., 1991; Geddes et al., 1999; Omalu et al., 2005, 2006, 2010; McKee et al., 2009, 2010; Gavett et al., 2010, 2011; Daneshvar et al., 2011a b; Costanza et al., 2011; Stern et al., 2011; Godstein et al., 2012; Saing et al., 2012.

²⁵ McKee et al., 2013

²⁶ NCAA 10068879-922 at 907.

²⁷ NCAA10101405-09, at 06.

²⁸ NCAA 10068879-922at 909 (Emphasis in original.).

²⁹ NCAA 10068879-922 *Id.* at 904.

³⁰ Email from David Klossner (NCAA) dated June 19, 2007, NCAA10022589.

³¹ American College of Sports Medicine, *Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement - 2011 Update*, MED. & SCI. SPORTS & EXERCISE 2412- 2412, 2415 (July 2011).

Exhibit 1

CURRICULUM VITAE

ROBERT CLARK CANTU, M.A., M.D., FACS, FAANS, FICS, FACSM

NAME: Robert Clark Cantu, MA, M.D., F.A.C.S., .F.A.A.N.S., F.I.C.S., F.A.C.S.M.
DATE OF BIRTH: August 31, 1938
BIRTHPLACE: Santa Rosa, California
PRESENT POSITIONS: Chief, Neurosurgery Service, Chairman Department of Surgery
 Director, Service of Sports Medicine
Emerson Hospital, Concord, MA 01742
 Telephone: 1-978-369-1386
 Facsimile: 1-978-287-0047

Clinical Professor Neurology and Neurosurgery, Boston University School of Medicine, Co-Founder Center for The Study of Traumatic Encephalopathy (CSTE), Boston University Medical Center, Boston, MA
Senior Advisor to NFL's Head, Neck and Spine Committee
Member/Co-Chair Equipment and Rules Committee NFLPA Mackey/White TBI Committee
Adjunct Staff Department Neurosurgery, Senior Advisor Brain Injury Center Children's Hospital Boston, Boston, MA
Adjunct Professor, Exercise and Sport Science, University North Carolina, Chapel Hill, NC
Medical Director, National Center for Catastrophic Sports Injury Research, Chapel Hill, NC
Clinical Instructor in Pediatrics, Boston University School of Medicine
Neurosurgical Consultant Boston College Eagles football team
Co-Director, Neurologic Sports Injury Center at Brigham and Women's Hospital, Boston, MA
Founding Member and Chairman Medical Advisory Board Sports Legacy Institute (SLI), Waltham, MA

EDUCATION: 1960 B.A. University of California, Berkeley
 1962 M.A. University of California, San Francisco
 1963 M.D. University of California, San Francisco

PROFESSIONAL EXPERIENCE:

1963 - 1964 **Intern in Surgery, Columbia-Presbyterian Hospital, New York, NY**
 1964 - 1967 **Assistant Resident in Neurosurgery, Massachusetts General Hospital**
 1964 - 1967 **Research Fellow in Physiology, Harvard Medical School**
 1967 - 1968 **Chief Resident in Neurosurgery, Boston City Hospital**
 1967 - 1968 **Teaching Fellow in Surgery, Harvard Medical School**
 1967 - 1968 **Clinical Assistant in Neurosurgery, Massachusetts General Hospital**
 1968 - 1973 **Clinical and Research Fellow in Neurosurgery, Massachusetts General Hospital**
 1968 - 1969 **Assistant in Surgery, Harvard Medical School**
 1969 - 1973 **Instructor in Surgery, Harvard Medical School**
 1968 - 1970 **Acting Assistant Director Neurosurgery, Boston City Hospital**
 1968 - 1970 **Director of Pediatric Neurosurgery, Boston City Hospital**
 1968 - 1973 **Clinical Associate in Neurosurgery, Massachusetts General Hospital**
 1968 - **Chief of Neurosurgery Service, Emerson Hospital, Concord, MA**
 1970 - 1995 **Neurosurgical Consultant, Cutler Army Hospital, Fort Devens, MA**
 1970 - 1975 **Neurosurgical Consultant, Nashoba Community Hospital, Ayer, MA**
 1976 - 1978 **Chief of Neurosurgery Service, Nashoba Community Hospital, Ayer, MA**
 1979 - 1980 **Chairman, Department of Surgery, Emerson Hospital, Concord, MA**
 1980 - **Director, Service of Sports Medicine, Emerson Hospital, Concord, MA**
 1989 - 1991 **Chairman, Department of Surgery, Emerson Hospital, Concord, MA**
 1989 - **Medical Director, National Center for Catastrophic Sports Injury Research**
 1991 - 1993 **Board of Trustees, Emerson Hospital, Concord, MA**
 1991 - 1993 **Director, Emerson Health System, Inc.**
 1992 - 1993 **President, American College of Sports Medicine**
 1994 - **Clinical Instructor in Pediatrics, Boston University School of Medicine**

1994 - **Board of Trustees**, National Operating Committee on Standards For Athletic Equipment (NOCSAE)

1996 - **Vice-President**, National Operating Committee on Standards for Athletic Equipment (NOCSAE)

1994 - **Board of Advisors**, National Youth Sports Foundation for the Prevention of Athletic Injuries, Inc.

1998 - 2000 **Scientific Advisory Panel on Sports Medicine**, Knoll Pharmaceutical Company

1998 - 2000 **Advisory Committee for Injury Prevention**, Centers For Disease Control, Atlanta, GA

2000 - **Executive Committee Joint Section on Neurotrauma**,
Congress Neurological Surgeons/American Association Neurological Surgeons

2002 - 2005 **Editorial Board**, Journal of Athletic Training

2001 - **Co-Chairman**, NASCAR Safety Task Force, American College Sports Medicine, Indianapolis, IN

2002 - **Editorial Board**, Current Sports Medicine Reports

2002 - **Editorial Board**, American Journal of Medicine & Sports

2002 - **Neurosurgical Consultant**, Boston College Eagles football team

2003-2010 **Neurosurgical Consultant**, Boston Cannons professional Lacrosse team

2003 - **Editorial Board Principal Sports**, *Neurosurgery*

2003- **Adjunct Appointment**, Brigham and Women's Hospital, Boston, MA

2004-2010 **Chairman**, Department of Surgery, Emerson Hospital Concord, MA

2005- **Board of Directors**, Massachusetts Brain Injury Association, Westborough, MA

2007- **Medical Advisory Board of the State Boxing Commission**, Boston, MA

2007 - **Founding Member and Chairman Medical Advisory Board Sports Legacy Institute (SLI)**,
Waltham, MA

2007 - **Clinical Professor Neurosurgery**, Boston University School of Medicine, Boston, MA

2009 -2013 **Co-Director Center for The Study of Traumatic Encephalopathy (CSTE)**, Boston University
Medical Center, Boston, MA

2014- **Co-Founder Center for The Study of Traumatic Encephalopathy (CSTE)**, Boston University
Medical Center, Boston, MA

2010 - **Senior Advisor to NFL's Head, Neck and Spine Committee**

2010- **Fellow of the American Association of Neurological Surgeons (FAANS)**

2010 - **Member/Co-Chair Equipment and Rules Committee**, NFLPA Mackey/White TBI Committee

2010- **Fellow American Association Neurological Surgeons**

2012 - **Adjunct Staff Department Neurosurgery**, Senior Advisor Brain Injury Center Children's
Hospital Boston, Boston, MA

2014 - **International Rugby Board Advisory Group – United Kingdom**

2014- **Co-Founder Center for The Study of Traumatic Encephalopathy (CSTE)**, Boston University
Medical Center, Boston, MA

SERVICE TO PROFESSIONAL SOCIETIES

NATIONAL SOCIETIES:

American College of Sports Medicine	1978 -
Board of Trustees	1984 - 1994
	1996 - 1999
Ambassador	1988 –
President-elect:	American College of Sports Medicine, 1991 - 1992
President:	American College of Sports Medicine, 1992 - 1993
Treasurer:	American College of Sports Medicine, 1996 – 1999
Associate Editor:	<u>Medicine and Science in Sports and Exercise</u> , 1986 - 1998
Associate Editor:	<u>Exercise and Sports Science Reviews</u> , 1986 - 2000
Editorial Board:	<u>The Physician and Sportsmedicine</u> , 1989 -
Editorial Board:	<u>Clinical Journal of Sports Medicine</u> , 1991 -
Editorial Board:	<u>Journal Athletic Training</u> , 2000 – 2005

Editorial Board: Neurosurgery: Sports Section

2003 –

American Association of Neurological Surgeons

Chairman, Sports Medicine Section, 1985 – 1988

American Medical Tennis Association

Board of Directors, 1984 – 1987

REGIONAL SOCIETIES:

New England Chapter, American College of Sports Medicine

Executive Committee: 1980 - 1982

President: 1981 - 1982

Board of Trustees: 1982 - (**Chairman**, 1983)

PROFESSIONAL CONSULTANT:

1983 - 1985 Advisory editor in sports medicine to The Collamore Press, Lexington, MA
 1984 - Technical advisor, Milner-Fenwick Company, Baltimore, MD
 1985 - Consultant, United States of America Amateur Boxing Federation, Inc.
 1986 - Consultant, Exercycle Corporation, Woonsocket, RI
 1986 - 1988 Consultant, Reebok Corporation, Avon, MA
 1988 - 1990 Consultant, Nautilus Company, Independence, VA
 1994 - Athletic Advisory Board, Hartwell Medical
 1994 - 2000 Consultant, NordicTrack, Chaska, MN
 1998 - 2000 Scientific Advisory Panel on Sports Medicine. Knoll Pharmaceutical Co.
 2000- Executive Committee Joint Section on Neurotrauma, Congress Neurological Surgeons/American
 Association Neurological Surgeons
 2002-2005 Editorial Board, Journal of Athletic Training
 2002- Neurosurgical Consultant to Boston College Eagles football team
 2003-2010 Neurosurgical Consultant to Boston Cannons professional Lacrosse team
 2003 Principal – Sports Section, *Neurosurgery*
 2003- NOCSAE Consultant to the NFL Concussion Committee
 2004- Board of Directors, Massachusetts Brain Injury Association, Westborough, MA
 2007- Medical Advisory Board of the State Boxing Commission, Massachusetts
 2007 - Founding Member and Chairman Medical Advisory Board Sports Legacy Institute, Waltham, MA
 2014 - International Rugby Board Advisory Board – United Kingdom

FELLOWSHIPS:

1975 **Fellow**, American College of Surgeons
 1981 **Fellow**, International College of Surgeons
 1981 **Fellow**, American College of Sports Medicine
 2010 **Fellow**, American Association Neurological Surgeons (FAANS)

HONORS AND AWARDS:

California Scholastic Federation Award
 Kraft Award (top twenty freshmen), University of California, Berkeley, 1956-57
 Borden Research Award, 1963
 Microcirculatory Travel Award, 1963
 Candidate Group Prize, Massachusetts Chapter, American College of Surgeons, 1969
 Honor Award in Medicine, New England Chapter, American College of Sports Medicine, 1987
 Distinguished Service Award, American Association for the Improvement of Boxing, 1991
 Rocky Marciano Medical Award, American Association for the Improvement of Boxing, 1995

Citation Award, American College of Sports Medicine, 1996
Special Citation Award, New England Chapter, American College Sports Medicine, 2002
Educator of the Year Award from the American Association of Professional Ringside Physicians 2004
Dr. Ernst Jokl Sports Medicine Award 2010 from The United States Sports Academy 2010
Community Clinician of the Year 2013 from The Middlesex Central District Medical Society and The Massachusetts Medical Society
ETHOS Award, Institute for Sports Law and Ethics, University of Santa Clara 2014

LICENSES TO PRACTICE MEDICINE:

By written examination in California, 1963 #: 21223
By written examination in Massachusetts, 1964 #: 28386

SPECIALTY BOARD CERTIFICATION:

American Board of Neurological Surgery, 1970

MEMBERSHIPS:

Social Fraternities: Phi Kappa Psi
 Nu Sigma Nu (President, Phi Chapter, 1962-1963)
Scholastic Fraternities California Scholastic Federation
 Tower and Flame
 Phi Eta Sigma
 Phi Beta Kappa (junior year)
 Alpha Omega Alpha

PROFESSIONAL SOCIETIES:

American Academy of Sports Physicians
American Association for the Advancement of Science
American Association for the Improvement of Boxing
American Association of Neurological Surgeons
American Association of Professional Ringside Physicians
American Association for the History of Medicine
American College of Angiography
American College of Sports Medicine
American College of Surgeons
American Federation of Clinical Research
American Heart Association
American Medical Association
American Physiology Society
American Society for Pharmacology and Experimental Biology
California (Medical) Alumni Society
Congress of Neurological Surgeons
International College of Surgeons
International Society for Pediatric Neurosurgery
Massachusetts Medical Benevolent Society
Massachusetts Medical Society
Microcirculatory Society
New England Neurosurgical Society
North American Spine Society
Presbyterian Hospital Alumni Society
Society of Military Surgeons
Society of Neuroscience

BACKGROUND SUMMARY

Currently Dr. Cantu's professional responsibilities include those of Clinical Professor of Neurology and Neurosurgery and Co-Director [Center for the Study of Traumatic Encephalopathy, Boston University School of Medicine](#), Boston, MA; Founding member and Medical Director [Sports Legacy Institute](#), Waltham, MA; Adjunct Professor Exercise and Sport Science and Medical Director [National Center for Catastrophic Sports Injury Research, University of North Carolina](#), Chapel Hill, NC; Co-Director, [Neurologic Sports Injury Center, Brigham and Women's Hospital](#), Adjunct Staff Department Neurosurgery and Senior Advisor Brain Injury Center [Children's Hospital Boston](#), Boston, MA; Boston, Chief of Neurosurgery Service, Associate Chairman Department of Surgery, and Director of Sports Medicine at [Emerson Hospital](#) in Concord, Massachusetts, Neurosurgical Consultant Boston Eagles football team. He has authored over 392 scientific publications, including 31 books on neurology and sports medicine, in addition to numerous book chapters, peer-reviewed papers, abstracts and free communications, and educational videos. He has served as associate editor of [Medicine and Science in Sports and Exercise](#) and [Exercise and Sports Science Review](#), and on the editorial board of [The Physician and Sports Medicine](#), [Clinical Journal of Sports Medicine](#), and [Journal of Athletic Training](#). In 2003 Dr. Cantu became the section head for the Sports Medicine Section of *Neurosurgery*.

He grew up in the northern California community of Santa Rosa. In 1960, he received his B.A. degree from the University of California Berkley where he pitched on the varsity baseball team. Jointly, in medical school and graduate school, he received his M.A. degree in endocrinology in 1962, and in 1963, his M.D. from the University of California Medical School in San Francisco. Following a surgical internship at Columbia-Presbyterian Hospital in New York City in 1963-1964, he began a neurosurgery residency at Massachusetts General Hospital in Boston, and simultaneous position of research fellow in physiology at Harvard Medical School. Upon completion of his residency in 1968, he joined the neurosurgery staff at MGH, where his practice and laboratory were located, while assuming the position of acting assistant director of neurosurgery and director of pediatric neurosurgery at Boston City Hospital. After five years of academic neurosurgery with Harvard Hospitals, Dr. Cantu entered private neurosurgery practice at the suburban Emerson Hospital in Concord, Massachusetts where he currently serves as Chairman Department of Surgery, Chief Neurosurgical Service and Director Service of Sports Medicine.

In addition to his professional responsibilities, Dr. Cantu is medical director of the [National Center for Catastrophic Sports Injury Research, located in Chapel Hill, North Carolina](#), an ongoing registry instituted in 1982 for data collection and analysis of spine and head injuries. From this data important contributions have been made in sport safety and accident reduction; most notably football rule changes concerning tackling and blocking with the head, the establishment of football helmet standards, improved on-the-field medical care, and coaching techniques. He also serves on the Board of Trustees as Vice President and chairman of scientific committee of [NOCSAE](#) (National Operating Committee on Standards for Athletic Equipment).

Dr. Cantu also is Co-Director of the Neurological Sports Injury Center at Brigham and Women's Hospital in Boston, MA.

For many years, Dr. Cantu has been actively involved with the American College of Sports Medicine (ACSM), the oldest and largest sports medicine and exercise science organization in the world, and served as President of this organization from 1992 to 1993 and served as treasurer from 1996 to 1999. Dr. Cantu has received recognition from the college being named as the recipient of their Citation Award in 1996. This year Dr. Cantu gave the organizations most prestigious J.B. Dill Lecture on the History of Concussions at ACSM's annual meeting in New Orleans.

As spokesperson for ACSM, he has participated in nationally televised sports programs speaking on diverse sports issues and has appeared on "Larry King Live" discussing the Chris Benoit case in conjunction with Chris' father Michael Benoit, "ESPN Outside the Lines" discussing the Chris Benoit case, Canadian Television also discussing the Chris Benoit case as well as other media avenues, "NFL Today" with Bryant Gumbel and Terry Bradshaw, discussing the effect of artificial turf on cervical spine injuries, and football injuries on CNBC's "The Real Story". He has been interviewed for World News Tonight with Peter Jennings, CBS Evening News with Katie Couric, Dan Rather, and NBC Evening News with Brian Williams regarding gender and concussion incidence. He has been a spokesperson for ACSM on NASCAR deaths and safety issues surrounding NASCAR and has been interviewed for "World News Tonight" with Peter Jennings regarding NASCAR deaths and specifically Dale Earnhardt's death as well as safety issues in auto racing. Dr. Cantu also appeared on "ABC World News Tonight" with Bob Jamison regarding the Korey Stringer death from heat stroke as well as WGBH Channel 2 in Boston, NPR radio interview, WEEI Boston radio interview and ESPN's "Outside the Lines", all discussing the issue of heat stroke. He has discussed the health issues of football players with Mary Carillo on HBO's Inside the NFL and has done an interview regarding sports related injuries in cheerleading on Inside the NFL. Dr. Cantu has also been interviewed by Bob Costas on HBO's Inside the NFL regarding Concussion in Professional Sports and was the key speaker on Designer Steroids for Comcast Cable Network. Dr. Cantu is currently serving as the Consultant for NOCSAE to the NFL Concussion

Committee and Co-Chairman for the NASCAR Safety Task Force with ACSM. Dr. Cantu has done safety presentations for drivers and teams of CART as well as NASCAR. Dr. Cantu has been interviewed by ESPN Outside the Lines Tom Friend regarding Baby Joe Mesi and his return to boxing after a controversial subdural hematoma. Dr. Cantu continues to be an outspoken advocate for the sport of boxing and continues to advocate for the safety of that sport and its participants. Recently Dr. Cantu has done several interviews on Concussion in the NFL with ESPN, HBO and the Boston area news channels. Dr. Cantu has recently been involved with the NFL meeting in NYC regarding concussions and guidelines for concussions with Roger Goodell. Most recently Dr. Cantu has appeared on Brian Williams Rock Center with Kate Snow discussing concussion issues.

As an author of numerous books as well as articles on sports medicine topics, he is frequently invited to participate in symposiums addressing a wide range of sports medicine topics including anabolic steroid use; eating disorders in female athletes; acute and chronic brain injury in boxing; and on-the-field evaluation and medical management and return to play guidelines following head and spine sports injuries. *Dr. Cantu's most recent book "Concussion and Our Kids" was released September 19, 2012 from Houghton Mifflin Harcourt.*

He has served as a consultant to many scholastic and professional athletes on the return to collision sports after a head injury or spine injury, and is active speaking on a variety of health-related interests including the overall benefits of moderate regular exercise; the special health and exercise concerns of senior citizens; and sports safety issues with high school athletic trainers, coaches, students and parents. He currently serves as the Neurosurgical consultant to the Boston College Eagles Football team and served as the Neurosurgical consultant to the Boston Cannons professional Lacrosse team from 2003 to 2010. He recently was asked by the NFL Commissioner Roger Goodell to give two presentations at the NFL's concussion meeting in Chicago.

Practicing what he preaches, Dr. Cantu has enjoyed long-distance running since 1967. An official entrant in many Boston Marathons, he has also enjoyed the "long runs" at Newport and New York City,. Besides running, Dr. Cantu is a serious tennis player, for many years ranked in the men's senior singles in New England (NELTA) region. Dr. Cantu has two children, Rob and Elizabeth and a grandchild Jeremy and lives with his wife Tina in Lincoln, Massachusetts.

PUBLICATIONS: 392

BOOK CHAPTERS	90
REFEREED ARTICLES	176
BOOKS	32
NON-REFEREED ARTICLES	46
ABSTRACTS AND FREE COMMUNICATIONS	29
SPORTS MEDICINE EDUCATIONAL VIDEOS	15
IN PRESS	4

BOOK CHAPTERS

1. **Cantu RC**: The treatment and prevention of athletic low back injuries, in Vinger FP, Hoerner EF (ed): Sports Injuries: the Unthwarted Epidemic, Littleton, PSG Publishing, Inc, 1980.
2. **Cantu RC**: Nutrition and endurance exercise: Facts, myths, speculations, in **Cantu RC** (ed): Health Maintenance Through Physical Conditioning, Littleton, Wright-PSG Publishing, Inc, 1981.
3. **Cantu RC**: The prevention of athletic head and spine injuries, in **Cantu RC** (ed): Health Maintenance Through Physical Conditioning, Littleton, Wright-PSG Publishing, Inc, 1981.
4. **Cantu RC**, Day RG: Corporate fitness centers, in **Cantu RC** (ed): The Exercising Adult, Lexington, The Collamore Press, D.C. Heath & Co, 1981.
5. **Cantu RC**: Head and cervical spine injuries, in **Cantu RC** (ed): The Exercising Adult, Lexington, The Collamore Press, D.C. Heath & Co, 1981.
6. **Cantu RC**: Lumbar spine injuries, in **Cantu RC** (ed): The Exercising Adult, Lexington, The Collamore Press, D.C. Heath & Co, 1981.
7. **Cantu RC**: Conditioning the cardiovascular system, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
8. **Cantu RC**: Nutrition for sports, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
9. **Cantu RC**: Exercise and life-style modifications in primary care practice, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
10. **Cantu RC**: Writing a precise aerobic exercise prescription, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
11. **Cantu RC**: Sports injuries in young athletes, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
12. **Cantu RC**: The sports medicine bag of the primary care team physician, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
13. **Cantu RC**: Head and neck injuries, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
14. **Cantu RC**: Lumbar spine injuries, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
15. **Cantu RC**: Torso and genitourinary tract injuries, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
16. **Cantu RC**: Upper extremity injuries, in **Cantu RC** (ed): Sports Medicine in Primary Care, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
17. **Cantu RC**: Sports and the handicapped child, in Micheli LJ (ed): Sports Injuries in the Child and Adolescent, Boston, Little Brown & Co, 1982.
18. **Cantu RC**: Techniques of spinal fusion, in Schmidek HH, Sweet W (ed): Current Techniques in Operative Neurosurgery, Orlando, Grune & Stratton, Inc, 1982.

19. **Cantu RC**: Epidemiology, biomechanics, and diagnoses of head and cervical spine injuries, in **Cantu RC** (ed): Sports Medicine-Sports Science: Bridging the Gap, Lexington, The Collamore Press, D.C. Heath & Co, 1982.
20. **Cantu RC**: Intracranial injuries, in Butler RB, Moore MJ, **Cantu RC** (ed): Neurology in Primary Care, New York, MacMillan Publishing Co, 1985.
21. **Cantu RC**: Cervical, thoracic and lumbar spine injuries, in Butler RB, Moore MJ, **Cantu RC** (ed): Neurology in Primary Care, New York, MacMillan Publishing Co, 1985.
22. **Cantu RC**: Intervertebral disc disease: Acute rupture, spondylosis and spinal stenosis, in Bulter RB, Moore MJ, **Cantu RC** (ed): Neurology in Primary Care, New York, MacMillan Publishing Co, 1985.
23. **Cantu RC**: Head and spine injuries in the young athlete, in Micheli LJ (ed): Clinics in Sports Medicine: Injuries in the Young Athlete, Philadelphia, W.B. Saunders Co, 1988.
24. **Cantu RC**: Techniques of fusion in the cervical, thoracic, and lumbar spine, in Schmidek HH, Sweet WH (ed): Operative Neurosurgical Techniques: Indications, Methods and Results, ed 2. Orlando, Grune & Stratton, Inc, 1988.
25. **Cantu RC**: Head injury in sports, in Grana WA, Lombardo JA (ed): Advances in Sports Medicine and Fitness, vol 2. Chicago, Year Book Medical Publishers, 1989.
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45. Mueller FO, **Cantu RC**: National Center for Catastrophic Sports Injury Research 29th Annual Report. Fall 1982 to Spring 2011. Chapel Hill, NC
46. Mueller FO, **Cantu RC**: National Center for Catastrophic Sports Injury Research 30th Annual Report. Fall 1982 to Spring 2012. Chapel Hill, NC

ABSTRACTS AND FREE COMMUNICATIONS

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4. Nahas GG, **Cantu RC**, Manger WM, Correll JW: Mediation of adrenal medullary secretion in response to hypotension after spinal cord section. Physiologist 1964; 7:210.
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7. **Cantu RC**, Schwab RS: Protein-bound iodine (PBI) fall and serum ceruloplasmin (SC) rise following diphenylhydantoin administration (DA) in man. Pharmacologist 1965; 7:145.
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9. **Cantu RC**, Ames A III: Improvement of cerebral perfusion following complete ischemia. Fed Proc 1968; 27:329.
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11. **Cantu RC**, Ames A III: Distribution of cerebral vascular obstruction following ischemia. Circulation 1968; 38, suppl VI:51.
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13. Dixon J., **Cantu RC**, Ames A III, DiGiacinto G: Effect of heparin on vascular lesions caused by cerebral ischemia. Clin Res 1968; 16:513.
14. **Cantu RC**, DiGiacinto G, Dixon J, Ames A III: Reversibility of post-ischemic cerebrovascular obstruction. Clin Res 1969; 17:233.
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16. **Cantu RC**, Snyder M: Effect of pharmacological agents on post-ischemic cerebrovascular obstruction. Fed Proc 1970; 29:520.
17. **Cantu RC**: Factors improving post-ischemic cerebrovascular obstruction. Stroke 1973; 4:345.
18. **Cantu RC**: Acute and chronic brain injury and contact sports. 1987; ACSM Clinical Conference, Keystone, CO.
19. **Cantu RC**: Concussion - what is it? Guidelines for returning to sports. 1987; ACSM Clinical Conference, Keystone, CO.

20. **Cantu RC**: Discogenic disease: surgical and non-surgical approaches. 1987; ACSM Clinical Conference, Keystone, CO.
21. **Cantu RC**: Medical aspects of boxing. 1987; ACSM Clinical Conference, Keystone, Co.
22. **Cantu RC**: Catastrophic Football Spine Injuries: 1977-1988. Joint Section on Disorders of the Spine and Peripheral Nerves 1990; AANS/CNS Annual Meeting, Captiva Island, FL.
23. Cunningham LM, **Cantu RC**: Is exercise intensity generalizable? Comparison of exercise test modes. MSSE 1990; 22:13.
24. Van Camp SP, Mueller FO, **Cantu RC**, Nattiv A, Eichner ER: Catastrophic sports injuries in high school and college athletes. MSSE 1994; 26:S86.
25. Mueller FO, **Cantu RC**: High school and college catastrophic pole vaulting injuries. MSSE 1995; 27:598.
26. Ross SE, Guskiewicz KW, **Cantu RC**: Balance recovery following cerebral concussion in collegiate athletes. ACSM Clinical Conference, Baltimore, MD MSSE 2001; 33:S145.
27. Guskiewicz KM, **Cantu RC**, Mueller FO, Barth, JT: Management of sports related concussion: New insights into an old problem. ACSM Clinical Conference, Baltimore, MD MSSE 2001; 33:S144.
28. Guskiewicz KM, Marshall SW, Broglio SP, **Cantu RC**, Kirkendall DT: No evidence of impaired neurocognitive performance in collegiate soccer players. ACSM Clinical Conference, Baltimore, MD MSSE 2001; 33:S186.
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SPORTS MEDICINE EDUCATIONAL VIDEOS

- Diabetes and Exercise
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Milner-Fenwick Company; 1984
- Sports Medicine and the Primary Care Physician
Cantu RC, Siegel AJ, Childs HD.
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The preschool-sports physical, life-style modification in the well patient; special emphasis given to assisting physicians to help patients make life-style changes necessary to reap the benefits of regular physical activity.
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Williams & Wilkins Electronic Media; 1992

Cantu RC: "Athletic Head and Neck Injury"

• ACSM: 39th Annual Meeting
Cantu RC, Jordan BD, Sennett BJ, Micheli LJ, Hainline B.
CME Conference Video, Inc.; 1992

Cantu RC, Jordan BD: "Sports Neurology"

• ACSM Sports Medicine CAQ Review
Cantu RC, Stoller D, Saal J, Smith AD, Shoor S.
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Cantu RC: "Functional Anatomy & Biomechanics: Exam of the Patient with Low-Back Pain"

Cantu RC: "Lumbar spinal stenosis: Dx and Management"

Cantu RC "Indications for Surgery and Return to Competition After Lumbar Spine Injury"

Cantu RC: "Legal Aspects of Sports Medicine and Role of the Team Physician"

Cantu RC: "Epidemiology, Recognition, and Acute Management of Closed Head Injury/Concussion"

Cantu RC: "Return to Competition After Head Injury"

Cantu RC: "Fractures and Dislocations of Cervical Spine"

Cantu RC: "Epidemiology, Evaluation, and Treatment of Traumatic Spinal Cord Injury: Return to Competition"

Cantu RC: "Case Presentations: Transient Quadriplegia"

• ACSM/Wyeth Ayerst Laboratories
Spellbound Productions; 1994

Cantu RC: "Cervical Spine Injuries"

Cantu R, Torg J et al: "Catastrophic Head and Spine Injuries in Football"
NATA

IN PRESS

1. Terell, T et al
2. Picano J, **Cantu RC** et al. Defining Concussion: An Emperical Analysis of Concussion Reporting Using a Specific Definition of Concussion. *Clin J Sports Med* (submitted)
3. Cantu RV, **Cantu RC**. Cervical Spine chapter for Lyle Micheli due October
4. Chapter on "Concussion" *Head Trauma and Brain Injury*.

RECENT LECTURE PRESENTATIONS

- 8.13.14 Western University
“Sport Safety and Accident Reduction, Including The Establishment of Helmet Standards”
“Treatment Outcomes, Signs and Symptoms and Contemporary Treatment Strategies”
London, ON, Canada
- 7.31.14 #C4CT Concussion Awareness Summit
“Current State of Sport Concussion”
United Nations Headquarters
NYC, NY
- 7.18.14 Third Annual Western Slope Sports Medicine Clinical Symposium
“Concussion Management – Yesterday, Today, Tomorrow”
Grand Junction, CO
- 7.15.14 Hit Count Meeting
- 6.20.14 NOCSAE Summer Meeting
Boston, MA
- 6.5.14 Concord Rotary Club
“Why Youth Are At Increased Risk of Concussion”
Concord, MA
- 5.29.14 White House Concussion Summit
Washington, DC
- 5.23.14 11th Annual Sports Conference
“Practice Like Pros”
Martin Conference Center
Harvard Medical School
Boston, MA
- 5.16.14 9th Annual Brain Injury Rehabilitation Conference
“Update on Chronic Traumatic Encephalopathy”
“Management of Concussion in Student Athletes”
Liberty Station conference Center
San Diego, CA
- 5.8.14 New England Youth Concussion forum
“Concussion Past, Present, Future”
Gillette
Foxboro, MA
- 4.26.14 2014 Sports Sciences Symposium
“Concussions: The Current Concussion Lessons We Have Learned”
Hilton Orlando at Lake Buena Vista Hotel
Orlando, FL
- 4.6.14 AMSSM
“Neurological Assessment and Concussion Management”
“Breaking Backbones: Diagnosis and Management of Spinal Fractures in Athletes”
Hyatt Regency New Orleans
New Orleans, LA

3.29.14	ARP Mid Term Board Meeting Miami, FL
3.21.14	Mackey White TBI Committee Meeting Waldorf Astoria, Orlando Orlando, FL
3.17.14	Brain Injury Association of South Carolina “Short Term and Long Term Results of Repetitive Sub-Concussive and Concussive Head Injury” Columbia, SC
2.27.14	Press Conference “House Bill 5113, An Act Concerning Youth Athletics and Concussion” Hartford, CT
1.29.14	C4CT Concussion Awareness Summit “Long Term Consequences of Repetitive Brain Trauma: CTE and Neurodegeneration” United Nations NYC, NY
1.23.14-1.24.14	5 th Annual USA Rugby sports Medicine Symposium “Short Term and Long Term Results of Repetitive Sub-Concussive and Concussive Head Injury” Las Vegas, NV
1.17.14	NOCSAE Winter Board Meeting 2014 SAC Presentation Royal Palms Phoenix, AZ
1.9.14	NASCAR Meeting John Bobo, Steve O’Donnell, Jim Cassidy, Thomas Gideon, P.E., John Patalak, P.E. Daytona, FL
12.14.13	Beth Israel Deaconess Hospital “Risks for and Management of Patients with Concussions” Dedham Holiday Inn Dedham, MA
12.13.13	NCCSIR Chapel Hill, NC
11.25.13	Safe Sports Think Tank: Exploring the relationship between childhood sports-related concussions and long-term cognitive outcomes “What Should Parents Know About Short and Long-Term effect of Concussions, and Should Parents Limit Sports Activities For Children Who Have Suffered Multiple Concussions” Washington, DC
11.14.13	Press Conference Legislative Office Building Albany, NY
10.25.13	Boston Sports Medicine Symposium 2013 “How to Reduce the Risk of Concussions and CTE in Collision Sports”

Waltham Woods conference Center
Waltham, MA

10.24.13 ARP Annual conference
“Relationships Between CTE and Concussive Exposure in Contact Sports”
Symposium: Concussion and Action Points
VDARA Hotel & Spa
Las Vegas, NV

10.16.13 Annual Emerson Hospital Auxiliary
“The Concussion Crisis: Where Are We Today?”
Nashawtuc Country Club
Concord, MA

10.4.13 Reading Hospital
Grand Rounds
“Concussion Crisis in Youth Sports”
Thun/Janseen Auditorium
West Reading, PA

9.26.13 Belmont Hill School
“Concussion Update”
Belmont, MA

9.17.13 Emerson Hospital Cooperator Dinner
“The Concussion Crisis in 2013”
Emerson Hospital
Concord, MA

9.12.13 Fourth Annual Sports Law & Ethics Symposium
Santa Clara, CA

8.18.13 LA84 Foundation
“The Concussion Crisis in Youth Sports”
Los Angeles, CA

8.10.13 Massachusetts Coaches’ Association
“Practice Like Pro’s”
Worcester, MA

7.13.13 AOSSM 2013 Annual Meeting
Sheraton Chicago Hotel & Towers
Chicago, IL

6.28.13 NOCSAE Summer Board Meeting
Fairmont Olympic Hotel
Seattle, WA

5.17.13 10th Annual Sports-Related Conference on Concussion and Spine Injury
“Cervicogenic Headache, Upper Cervical Spine”
Martin conference Center at Harvard Medical School
Boston, MA

4.24.13 Mackey-White TBI Committee Meeting
Westin Grand Central
New York, NY

4.11.13	New England Patriots Alumni Club, Inc. CBS Scene, Patriots Place Foxboro, MA
4.10.13	SLI Reception Boston Harbor Hotel Boston, MA
4.8.13	NOCSAE SAC Meeting Westin Atlanta Airport Hotel Atlanta, GA
3.22.13	8 th Annual Brain Injury Rehabilitation Conference “The Concussion Crisis-Later Life Consequences” “Why We Need to Re-Think How Youth Sports Are Played” Sheraton Carlsbad Resort Carlsbad, CA
3.9.13	Second Matthew Gfeller Neurotrauma Symposium “Are Professional Sports Athletes Different From the Rest?” Chapel Hill, NC
1.27.13	NOCSAE Board Meeting SAC Presentation Fairmont Olympic Hotel Seattle, WA
12.1.12	APR Winter Board Meeting Atlantic City, NJ
11.16.12	NOCSAE Grant Meeting Chapel Hill, NC
11.14.12	“Concussion and Our Kids” Park School of Baltimore Baltimore, MD
11.4.12	4 th International Consensus Conference on Concussion in Sport Writing Group FIFA House Zurich Switzerland
10.31.12 - 11.4.12	4 th International Consensus Conference on Concussion in Sport “The NFL and Brain Safety First Since Zurich 2008” FIFA House Zurich Switzerland
10.27.12	Boston Sports Symposium “Protecting the Athlete’s Brain” Waltham Woods Conference Center Waltham, MA
10.26.12	2012 Brain Trauma and the Athlete Conference “Case Presentations and Discussion of Concussion, Post-Concussion Syndrome

- And CTE”
The Conference Center at Bentley College
Waltham, MA
- 10.26.12 2012 Brain Trauma and the Athlete Conference
“Graduated Return to Play and Academics”
The Conference Center at Bentley College
Waltham, MA
- 10.26.12 2012 Brain Trauma and the Athlete Conference
“Pathophysiology and Biomechanics of Concussion, Head Injury, and
Second Impact Syndrome”
The Conference Center at Bentley College
Waltham, MA
- 10.25.12 2012 Hit Count Symposium
“Evidence of Dose-Related Brain Damage and Disease-Is there a Threshold?”
Waltham, MA
- 10.13.12 Eighteenth Annual Brain Injury Symposium
Keynote Speaker
“Short and Long-term Consequences of Repetitive Head Trauma, Post Concussion
Syndrome – CTE Chronic Traumatic Encephalopathy”
JW Marriott Hotel
Miami, FL
- 10.12.12 2nd Annual Conference Concussion in Athletics: From Brain to Behavior”
“Consequences of “Ignorance & Arrogance” in accurate assessment of sport-related
Concussions”
Penn State University, PA
- 9.30.12 Cleveland Clinic Lou Ruvo Center for Brain Health
“Chronic Traumatic Encephalopathy (CTE) Conference 2012”
“CTE in the NFL: What Changes Have Been Made and What More Needs to be Done?”
Frank Gehry – designed Keep Memory Alive Center
Las Vegas, NV
- 8.15.12 St. Mary’s Healthcare
Gloversville High School
“Short and Long-term Consequences of Repetitive Head Trauma, Post Concussion
Syndrome – CTE Chronic Traumatic Encephalopathy”
Gloversville, NY
- 8.15.12 St. Mary’s Healthcare
Amsterdam High School\
- “Short and Long-term Consequences of Repetitive Head Trauma, Post Concussion
Syndrome – CTE Chronic Traumatic Encephalopathy”
Amsterdam, NY
- 7.19.12 Center for the Study of Traumatic Encephalopathy
Presentation to President BU
- 6.14.12 NOCSAE Board Meeting
NOCSAE Scientific Advisory committee Report to the Board

Intercontinental Hotel
Kansas City, MO

- 6.1.12 ARP Annual Meeting
“Concussion and Head Trauma in Martial Arts”
San Francisco Marriott Marquis
San Francisco, CA
- 5.26.12 Congress AQMS 2012
“Concussion Update 2012”
Grenville-sur-la-Rouge
Montreal Canada
- 5.18.12 Children’ Hospital Annual Sports Medicine Meeting
Sports-Related Conference on Concussion and Spine Injury
“Prevention of Concussion: What Works, What Doesn’t”
Joseph B. Martin Conference Center
Boston, MA
- 5.11.12 Injuries in Football 2012
“Head and Spine Injuries in Football: Concussion: Where are We Now”
Andrews Institute
Destin, FL
- 4.24.12 FC Stars of MA
“Concussion Prevention”
Nashawtuc Country Club
Concord, MA
- 4.23.12 National School Board Association Meeting
“Head Injuries”
Boston Convention Center
Boston, MA
- 4.18.12 NOCSAE Retreat
Westin Atlanta Airport
Atlanta, GA
- 4.13.12 Emerson Hospital Grand Rounds
“Current Concepts and Future Trends in Concussion Evaluation, Management and Treatment”
Assembly Room A/B
Emerson Hospital
Concord, MA
- 4.11.12 FC Stars of MA
“Concussion Prevention”
Nashawtuc Country Club
Concord, MA
- 3.26.12 NFLPA Annual Meeting
Mackey-White Traumatic Brain Injury Committee
Marco Island Marriott
Marco Island, FL
- 3.23.12 2012 Harvard Law Sports Symposium
“Concussion Crisis in Professional Sports”

Panelist
Harvard Law School
Cambridge, MA

- 3.23.12 Parker Memorial DBP CME Program BU/BMC
“Youth Concussions: Diagnosis, Management Including Return to Play and Prevention”
Boston University School of Medicine
Boston, MA
- 3.21.12 FC Stars of MA
“Concussion Prevention”
Nashawtuc Country Club
Concord, MA
- 3.18.12 NHL Meeting
New York, NY
- 3.11.12 APR Meeting
JW Marriott
Indianapolis, IN
- 2.25.12 Professional Football Chiropractic Meeting
“Concussion Management: Short and Long-term Consequences of Mismanaging a Concussion”
Indianapolis, IN
- 2.25.12 Professional Football Chiropractic Meeting
“Catastrophic and Long-Term Outcomes After Traumatic Brain Injury”
Indianapolis, IN
- 1.28.12 LifeBridge Health Concussion Symposium
“Chronic Effects of Concussive Injury”
Sinai Hospital of Baltimore Zamoiski Auditorium
Baltimore, MD
- 1.25.12 Syracuse Neuroscience Grand Rounds
“Short and Long Term Consequences of Mismanaging a Concussion”
Upstate Medical University
Syracuse, NY
- 1.21.12 NOCSAE Board Meeting
SAC Report to Board of Trustees
Royal Palms
Phoenix, AZ
- 1.7.12 Eastern Athletic Trainers Association
“Concussion Update”
Copley Plaza
Boston, MA
- 12.10.11 Beth Israel Deaconess Hospital Core Curriculum Series
“Traumatic Brain Injury: From Concussions to More Severe Injuries”
Dedham Holiday Inn
Dedham, MA
- 12.9.11 Retired Men’s Association
“Concussion Update”

First Baptist Church
Sudbury, MA

- 12.5.11 Congressional Hearings Testimony
NOCSAE
Congress
Washington, DC
- 11.17.11 Hyannis Rotary Club Luncheon
“Concussion Crisis”
Hyannis Country Club
Hyannis, MA
- 11.14.11 NOCSAE Youth Football Helmet Meeting
Westin Atlanta Airport
Atlanta, GA
- 11.4.11 Boston Shoulder and Sports Symposium 2011
“Concussion Update”
Conference Center at Waltham Woods
Waltham, MA
- 10.28.11 2011 Brain Trauma and Athletic Conference
Boston University Center for the Study of Traumatic Encephalopathy
“Return to Play Guidelines and Step-by-step Clinical Recommendations”
Framingham Sheraton
Framingham, MA
- 10.27.11 APR Annual Meeting
“Chronic Traumatic Encephalopathy”
Omni Orlando Resorts Championship Gate
Orlando, FL
- 10.24.11 Harvard University Lunch Time Learning Talk
“The neurophysiological cascade of concussion and brain damage – what is going on in the gray/white matter? Brain stem trauma – shearing/tearing – CNS damage from whiplash direct blows
Murr Center, Harvard University
Boston, MA
- 9.26.11 2011 Boston Public Schools Advanced Concussion Training
“Concussion Management for Coaches”
Northeastern University
Boston, MA
- 9.22.11 Athletics Committee Williams College
“New Trends in Concussion Management”
Williams College
Williamstown, MA
- 9.22.11 Athletics Committee Williams College
“Concussion for Coaches and Trainers”
Williams College
Williamstown, MA

- 9.21.11 Grand Rounds Haywood Hospital
“Current Evaluation and Management of Concussion”
Henry Haywood Hospital
Gardner, MA
- 7.23.11 1st Annual USOC Sports Medicine Symposium
“Keynote Presentation: Current Concepts and Future Trends in Concussion Evaluation,
Management, and Treatment
Olympic Training Center
Colorado Springs, CO
- 7.17.11 ATSNJ 2nd Annual Sports Concussion Summit
“Keynote Presentation: Long-Term Effects of Concussion
Wyndham Princeton Forrestal Village
Plainsboro, NJ
- 6.17.11 NOCSAE Board Meeting
“Report of the Scientific Advisory Committee Meeting of 4.22.11
Carolina Inn
UNC Chapel Hill
- 6.4.11 2011 Jacksonville Concussion Summit
“Concussion Management in your Community”
Brooks Rehabilitation Hospital
Jacksonville, FL
- 6.4.11 2011 Jacksonville Concussion Summit
“Concussion 101”
Brooks Rehabilitation Hospital
Jacksonville, FL
- 5.28.11 Canadian Athletic Trainers Association Annual Meeting
“Chronic Traumatic Encephalopathy”
Banff, Alberta Canada
- 5.27.11 Sports-Related Conference on Concussion & Spine Injury
“How the NFL Has Become a Leading Concussion Advocate”
Fenway Park
Boston, MA
- 5.7.11 Sports Related Concussion and Cervical Spine Injury Symposium
“Everything You Wanted to Know About Sports Related Concussion:
Epidemiology/Incidence/Research”
Rust Auditorium – North Shore University Hospital
Manhasset, NY
- 5.6.11 Andrews Institute “Injuries in Football” Conference
“Concussion: More Than Just a Headache”
Destin, FL
- 4.30.11 Inaugural UNC Matthew Gfeller Center Sport-Related Neurotrauma Symposium
“Catastrophic and Long-Term Outcomes of TBI”
UNC Chapel Hill

- 4.30.11 Inaugural UNC Matthew Gfeller Center Sport-Related Neurotrauma Symposium
“Pharmacological Interventions and Return-To-Play After Spinal Injury”
UNC Chapel Hill
- 4.29.11 Head Injury Symposium: Stunts & Tumbling, Cheerleading and other female sports
“Keynote Message, The Latest on the Concussion Crisis”
Omni Parker House Hotel
Boston, MA
- 4.22.11 NOCSAE Scientific Advisory Committee Meeting
Westin Atlanta
Atlanta, GA
- 4.1.11 MMS and DPS Sports Concussion Symposium and State Laws
“Concussion Management and Prevention”
Mass Medical Society Conference Room
Waltham, MA
- 3.23.11 RI Primary Care Physicians Corporation
“Concussion Management – New Strategies”
Crowne Plaza
Warwick, RI
- 3.19.11 Massachusetts Neurology Society
“Traumatic Brain Injury – Pathophysiologic Mechanisms”
Newton Marriott
Newton, MA
- 2.26.11 Joint Commission on Sports Medicine and Science
“Boxing Policy/Legislation: How it Can Be Improved”
Philadelphia Convention Center
Philadelphia, PA
- 2.26.11 Joint Commission on Sports Medicine and Science
“Concussion Landscape”
Philadelphia Convention Center
Philadelphia, PA
- 2.25.11 NFL Players Association Mackie/White TBI Committee
“Concussion and the Role of the Helmet”
Conrad Hotel
Indianapolis, Indiana
- 02.02.11 39th Annual INS Meeting
“Chronic Traumatic Encephalopathy: Long-term Consequences of Repetitive Brain Trauma”
Boston, MA
- 1.14.11 Washington DC Children’s Hospital
National Forum on Youth Sport Concussion Taking Action State by State
“The Concussion Landscape”
Children’s National Medical Center
Washington, DC
- 1.11.11 Brigham Young University College of Life Sciences
Sports Concussion and Brain Injury Seminar

- “Brain Injuries and Concussions”
Brigham Young University, Provo, UT
- 12.13.10 NFL Players Association Meeting
Mackey-White TBI Committee Members
Washington, DC
- 12.8.10 NFL Meeting
“NOCSAE: Current and future helmet standards
NYC, NY
- 11.18.10 Retired Athletes Meeting
Chapel Hill, NC
- 11.10.10 Get aHead Workshop: Emerging Knowledge and Significance of Sports-Related Concussions
“International Perspective On Concussions”
Dartmouth-Hitchcock Medical Center
Hanover, NH
- 11.04.10 AAPRP Annual Meeting The Brain and Neck In Boxing and Related Sports
“Concussion Definitions and Clinical Manifestations
Omni Orlando Resort at ChampionsGate
Orlando, FL
- 11.01.10 Hockey Concussion in Canada
Hockey Concussion Education Project (HCEP) – an Independent Physicians’ Study –
Presentation of findings – Press Conference
InterContinental Toronto Centre – Ontario Room
Toronto, Canada
- 10.29.10 Boston Shoulder and Sports Symposium 15th Annual
“Update Athletic Head and Neck Injuries”
Mass Medical Society Conference Center
Waltham, MA
- 10.20.10 Ice Hockey Summit: Action on Concussions
“Incorporating Hockey and Medical Knowledge with Action Items for Prevention”
Mayo Clinic
Rochester, MN
- 10.13.10 Lincoln Sudbury Regional High School Sports Conference
“Concussion in Sports Update”
LSRHS Auditorium
Sudbury, MA
- 10.5.10 “Gender and Age Effects On Concussion”
22nd Annual Ironman Sports Medicine Conference in Conjunction with the 2010
Ford Ironman World Championships
Royal Kona Resort
Kailua-Kona, HI
- 10.5.10 “Overview of Sports Related Concussion”
22nd Annual Ironman Sports Medicine Conference in Conjunction with the 2010
Ford Ironman World Championships

Royal Kona Resort
Kailua-Kona, HI

- 10.1.10 BU Second Annual Head Trauma in the Athlete Conference
Massachusetts Medical Society Auditorium
Waltham, MA
- 9.23.10 Emerson Hospital Youth Sports Injury Symposium
Concussions in Sports
Concord Carlisle High School Auditorium
Concord, MA
- 9.22.10 New Hampshire Pediatric Society
“Concussion Recognition, Management and Long term Sequellae”
SERESC Conference Center
Bedford, NH
- 9.15.10 Brigham and Women’s Hospital CORE Meeting
“Head Injuries and Athletes and Return to Play”
Brigham and Women’s offsite at Chestnut Hill
Chestnut Hill, MA
- 8.21.10 Athletic Trainers Association of New Jersey Concussion Summit
“Management of Concussion 2010”
Philadelphia, PA
- 6.28.10 “Coaches and Concussion”
Hooksett, NH
- 6.17.10 “Physical Fitness and Sports Medicine – Post Concussion”
“Short and Long Term Consequences of Mismanaging Concussion”
8th Annual Symposium on Men’s Health
Mass Medical Society Headquarters
Waltham, MA
- 6.12.10 United States Sports Academy
2009 United States Sports Academy Ernst Jokl Sports Medicine Award Presentation
To Dr. Robert Cantu
Harvard University
Cambridge, MA
- 5.18.10 Association of Chief Executives of Sport
“Short and Long Term Consequences of Mismanaging Concussion”
Antlers Hilton Hotel
Colorado Springs, CO
- 5.14.10 “What is a Concussion? Current Consensus Guidelines”
The Seventh Annual Sports-Related Conference on Concussion & Spine Injury
Presented by Brigham and Women’s Hospital
Fenway Park
Boston, MA
- 5.7.10 Keynote Speaker
“Chronic Traumatic Encephalopathy”

Neurology in the News
The University of Toledo, Department of Neurology and Center for Continuing Medical Education
Eleanor N. Dana Conference Center – University of Toledo
Toledo, Ohio

- 4.29.10 “Concussion in Sports Presentation at the CDC”
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention
Atlanta, GA
- 4.26.10 “2010 Sports and Society Colloquium”
Brown University, Salomon Hall
Providence, RI
- 4.22.10 “Short and Long Term Consequences of Mismanaging an Athletic Concussion”
2010 Injuries in Football Course
Andrews Institute
Pensacola, FL
- 4.8.10 “Short and Long Term Consequences of Mismanaging Concussion”
Massachusetts General Hospital Neurosurgery Grand Rounds
Ether Dome, MGH
Boston, MA
- 4.7.10 “Short and Long Term Consequences of Mismanaging a Concussion”
Boston University Grand Rounds
Boston University School of Medicine Continuing Medical Education
Boston, MA
- 3.12.10 “The Triad of Symptomatic Concussion, Second Impact Syndrome and Thin Subdural Hematoma”
Is Football Bad for the Brain?
Forensic Scientific, Medical-Legal and Societal Aspects of Concussion Debate
The Cyril H. Wecht Institute of Forensic Science and Law
- 3.12.10 “Update on NFL Concussion Committee Experiences”
Is Football Bad for the Brain?
Forensic Scientific, Medical-Legal and Societal Aspects of Concussion Debate
The Cyril H. Wecht Institute of Forensic Science and Law
- 3.7.10 “Interactive Case Studies
Youth Sports Concussions: Education to Legislation
Kane Hall Rm 130
University of Washington Campus
Seattle, Washington
- 3.6.10 Keynote Speaker
“Chronic Traumatic Encephalopathy”
Youth Sports Concussions: Education to Legislation
Kane Hall Rm 130
University of Washington Campus
Seattle, Washington

- 2.18.10 “The Short and Long Term Consequences of Mismanaging Concussion”
Concussion and Mild Traumatic Brain Injury: Update 2010
CSM Annual Meeting
Omni San Diego Hotel
San Diego, CA
- 1.26.10 NFL Players Association Concussion Committee
Medical Committee
Breakers
Palm Beach, FL
- 1.9.10 “Concussions”
Eastern Athletic Trainers Association Annual Meeting
Marriott Copley
Boston, MA
- 11.10.09 “Managing Concussion”
Pediatric Brain Injury Conference – BIA-MA
Best Western Royal Plaza
Marlborough, MA
- 11.6.09 “Panel Discussion on TBI”
Partnership for Military Medicine Symposium
Omni Shoreham Hotel
Washington, DC
- 10.30.09 “Concussions”
Fourteenth Annual Boston Shoulder and Sports Symposium 2009
Conference Center
Waltham Woods, Waltham, MA
- 10.29.09 CNN - Lou Dobbs
“Testimony before U.S. House Judiciary Committee”
Time Warner Building – CNN Headquarters, NYC
New York, NY
- 10.29.09 “Testimony Before U.S. House Judiciary Committee – Hearing on Legal Issues Relating
To Football Head Injuries”
Rayburn Building
Washington, DC
- 10.16.09 “Study of Traumatic Encephalopathy”
The American Association of Professional Ringside Physicians, Inc.
2009 Annual Medical Seminar
Mohegan Sun
Uncasville, CT
- 10.2.09 Welcoming Remarks
“Overview of Current Concussion Consensus Statements Including Zurich Conference”
Concussion and the Athlete
Boston University Medical Center School of Medicine Continuing Education
Gillette Stadium, Foxboro, MA

- 10.2.09 “Panel Discussion”
Concussion and the Athlete
Boston University Medical Center School of Medicine Continuing Education
Gillette Stadium, Foxboro, MA
- 10.2.09 “Chronic Traumatic Encephalopathy and the Athlete – Update from the Center for the Study
Of Traumatic Encephalopathy”
Concussion and the Athlete
Boston University Medical Center School of Medicine Continuing Education
Gillette Stadium, Foxboro, MA
- 9.3.09 “Traumatic Brain Injury in Sports: When Can the Athlete Return to Play?”
XIV World Congress of Neurological Surgery of the WFNS
Boston, MA
- 6.18.09 “The Concussion Dilemma: Are We Headed in the Right Direction”
60th NATA Annual Meeting and Clinical Symposia
Henry B. Gonzalez Convention Center
San Antonio, TX
- 5.27.09 “Managing Sports Related Concussion in the Youth and Adolescent Athlete”
American College of Sports Medicine Annual Meeting
Seattle, WA
- 5.20.09 “Overview of Sports Concussion Consensus Statements and Chronic Traumatic
Encephalopathy”
Brain Injury Association of New Hampshire 26th Annual Brain Injury and Stroke Conference
Radisson, Manchester, NH
- 5.15.09 “Playing with Post Concussion Symptoms: Alarming Rates and Prevalence”
3rd Annual National Summit on Concussion and Other Sports Medicine Injuries
Westin Hotel LAX
Los Angeles, CA
- 5.15.09 “What Should a Concussion Evaluation Consist Of”
3rd Annual National Summit on Concussion and Other Sports Medicine Injuries”
Concurrent Afternoon Session
Westin LAX
Los Angeles, CA
- 5.14.09 Keynote Address:
College Athletic Trainers’ Society
2009 Spring Symposium for Athletic Trainers and Team Physicians
The Orleans Hotel and Casino
Las Vegas, Nevada
- 5.9.09 “Concussion Management: Yesterday, Today and Tomorrow”
Sanford Sports Medicine Symposium
Sanford University South Dakota Medical Center
Sioux Falls, South Dakota
- 5.9.09 “Return to Play Issues Following Cervical Spine Injury”
Sanford Sports Medicine Symposium
Sanford University South Dakota Medical Center
Sioux Falls, South Dakota

- 5.9.09 “Catastrophic and Long Term Effects of Concussion”
Sanford Sports Medicine Symposium
Sanford University South Dakota Medical Center
Sioux Falls, South Dakota
- 5.9.09 “On-the-Field Management of the Concussed Athlete”
Sanford Sports Medicine Symposium
Sanford University South Dakota Medical Center
Sioux Falls, South Dakota
- 5.1.09 “Overview: Current Concussion Guidelines from the International Study Group”
6th Annual Sports Conference
BWH Hospital Conference
Fenway Park
Boston, MA
- 4.27.09 “Coaches Education Initiative”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.27.09 “Celebrity Athletes – Is Management the Same?”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.27.09 “Legal Case Discussion Sport and the Law”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.21.09 “Traumatic Brain Injury & Physiological Disorders Facing Athletes Post Performance”
Summit on Health of the Former Professional Athlete
LaQuinta Spa and Resort
Palm Springs, CA
- 4.13.09 “Pharmacological Interventions in Management of Spine Injuries”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.13.09 “Return to Play After Spinal Injury”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.13.09 “Spine Injuries and Contraindications to Participation in Collision Sports”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 4.5.09 “Current Concussion Classification and Return to Play Criteria”
First Annual Spring Current Concepts in Sports Related Concussions Symposium

Athletic Trainer Solutions
St. Paul Catholic High School
Bristol, CT

- 3.16.09 “Overview of Injury Types and Associated Complications”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 3.16.09 “Anatomy and Biomechanics of Spine Injuries in Sport”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 3.16.09 “Spine Injuries – Which Sports are at Greatest Risk and Why?”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 2.16.09 “Case Studies”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 2.16.09 “Parkinson’s Disease”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 2.16.09 “Chronic Traumatic Encephalopathy”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 2.16.09 “Post Concussion Syndrome”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 1.27.09 Press Conference
Chronic Traumatic Encephalopathy
In Association with the Super Bowl
Tampa, Florida

- 1.26.09 “Anatomical Dissection of the Brain”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 1.26.09 “Headaches in the Athlete”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 1.26.09 “Epilepsy and Athletics”
Neurologic Head and Spine Injuries Semester Course Lecture

University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC

- 1.26.09 “Stroke in Athletes”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 1.26.09 “Malignant Brain Edema and Second Impact Syndrome”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 1.26.09 “Intercerebral Hematoma”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 1.17.09 “Current Testing and Return to Play Issues/Guidelines – Zurich Update”
London Hockey Concussion Summit
London Hilton Hotel
London, Ontario, Canada
- 1.12.09 “Ionic and Metabolic Consequences of Concussion”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 1.12.09 “Athletic Head Injuries – Which Sports are at Greatest Risk and Why?”
Neurologic Head and Spine Injuries Semester Course Lecture
University of North Carolina – Doctorate Program Presentation
Chapel Hill, NC
- 1.9.09 “Post Concussion Syndrome and Traumatic Encephalopathy”
Emerson Hospital Medical Staff Clinical Conference
Emerson Hospital, Concord, MA
- 1.6.09 “Post Concussion Syndrome and Traumatic Encephalopathy”
Boston University Grand Rounds Presentation
Boston, MA
- 10.30-31.08 “Is Immediate Return to Play in the Same Game Ever Justified?”
3rd International Conference on Concussion in Sport
Hotel Zurichberg
Zurich Switzerland
- 10.18.08 “Pituitary Dysfunction in Professional Boxing and the National Football League”
2008 Annual Medical Seminar, AAPRP
Paris/Bally’s Resort & Casino
Las Vegas, Nevada
- 10.3.08 “Return to Boxing After Subdural Hematoma – When?”
World Boxing Association Medical Seminar, 87th Annual Convention
Hotel Barcelo Bavaro Palace

Punta Cana, Dominican Republic

- 9.18.08 “Traumatic Brain Injury and Shaken Baby Syndrome”
14th International Conference Child Abuse Allegations: Separating Scientific Fact from Fiction
Riviera Hotel and Casino
Last Vegas, NV
- 7.24.08 “Preventive Aspects of Sports Concussion”
New Developments in Sports-Related Concussion Conference
Sheraton Station Square
Pittsburgh, PA
- 6.21.08 “Concussion in Sports”
New York State Public High School Athletic Association (NYSPHSAA)
Saratoga, NY
- 6.11.08 “Neurotrauma in Sports”
Symposium on the Prevention of Spinal Cord Injuries and Concussions in Hockey
Hockey Hall of Fame
Toronto, Canada
- 5.28.08 “Neuropsychological Assessment of the Concussed Athlete: Only One Piece of the Concussion
Puzzle”
ACSM 55th Annual Meeting
Indianapolis, IN
- 5.9.08 “Concussion in Women Athletes”
2008 Sports Related Conference on Concussion and Spine Injury
Brigham and Women’s Hospital
Fenway Park
Boston, MA
- 5.3.08 “Concussion in Sports”
The Hill School
Pottstown, PA
- 5.1.08 “Concussion and High School Sports, Risks and Management”
Arlington High School
Arlington, MA
- 4.19.08 “Concussion in Sports: Does Gender Matter?”
The National Concussion Summit
Concussion in Sports: Advancing Health and Safety
Marriott Hotel
Marina del Rey, CA
- 4.18.08 “Concussion in Sports: Does Gender Matter?”
The National Concussion Summit
Concussion in Sports: Advancing Health and Safety
Marriott Hotel
Marina del Rey, CA
- 4.3.08 “Concussions and Sports”

Winchester High School
Winchester, MA

- 3.13.08 “Clinical Models for Concussion Management and Return to Play”
Fourth International Meeting on Minor Traumatic Brain Injury in Sports
Hotel Crystal, St. Moritz, Switzerland

- 3.8.08 “Concussions and the Sports Legacy Institute”
Joint Commission on Sports Medicine and Science 2008
New Orleans Hilton Riverside
New Orleans, LA

- 12.13.07 “Current Advances in Concussion Management/Traumatic Encephalopathy”
Grand Rounds
Brigham and Women’s Hospital
Boston, MA

- 11.29.07 “Concussion in Sports”
Two presentations to student assemblies
Concord Carlisle High School
Concord, MA

- 11.28.07 “Concussion and Sports”
Presentation for parents, coaches, trainers, nurses and physicians
Concord Carlisle High School
Concord, MA

- 11.26.07 “Chronic Traumatic Encephalopathy/Concussion”
Boston Medical Center Grand Rounds
Boston Medical Center
Boston, MA

- 11.29.07 “Update Baby Joe Mesi”
Medical Advisory Board Meeting
Massachusetts Boxing Commission
McCarthy Building
Boston, MA

- 11.29.07 “More Than Just a Bump on the Head”
Concord Carlisle High School Students Presentation
Two Presentations One hour each to student body
Concord, MA

- 11.28.07 “More Than Just a Bump on the Head”
Concord Carlisle High School Parents Presentation
Concord, MA

- 11.26.07 “Concussion and Sports Related Head Injury”
Neurosurgery/Surgery Grand Rounds
Boston University Medical Center
Boston , MA

- 11.15.07 “Joe Mesi Update”
AAPRP Annual Meeting

Intercontinental Hotel and Resort
San Juan, Puerto Rico

10/29/07	<p>“Concussion in High School” Woburn High School Woburn, MA</p>
10/26/07	<p>“Concussion and Sudden Death: Coping With Two Crises” Independent School Health Association Annual Meeting New Canaan Country School New Canaan, CT</p>
9/27/07	<p>“Concussions in High School” Austin Prep School Reading, MA</p>
9/24/07	<p>“The Concussion Crisis in Football” U Mass Lowell Athletic Department Meeting McGauvran Hall Lowell, MA</p>
9/17/07	<p>“History of Concussion and Second Impact Syndrome” New Hampshire Interscholastic Athletic Association Annual Meeting Courtyard by Marriott Concord, NH</p>
7/13/07	<p>“Concussion/Brain” The American Orthopedic Society for Sports Medicine Annual Meeting TELUS Convention Center Calgary, Canada</p>
7/12/07	<p>“Spine Instructional Course” The American Orthopedic Society for Sports Medicine Annual Meeting TELUS Convention Center Calgary, Canada</p>
6/1/07	<p>The D.B. Historical Lecture “The Evolution of Sports-related Concussion Recognition, Management and Prevention: The Science, the Art and the Politics.” Annual Meeting ACSM New Orleans, Louisiana</p>
5.5.07	<p>“Concussion: How to make the diagnosis and Overview of Current Concussion Consensus Statements” Sports Specific Rehabilitation Program High Performance Sports, Inc. Peabody, MA</p>
4/30/07	<p>“Concussion Management and Diagnosis” New England University Medical Department Seminar New England University Biddeford, ME</p>

- 4/27/07 “Overview of Current Concussion Consensus Statement”
2007 Sports Related Conference on Concussion and Spine Injury
Fenway Park
Boston, MA
- 4.20.07 “Traumatic Encephalopathy Among NFL Players”
The National Concussion Summit. Concussion in Sports: The Under-Recognized Public
Epidemic
The Marriott Hotel
Los Angeles, CA
- 4/20/07 “Concussion in Sports: State of the Science - Discussant”
The National Concussion Summit: Concussion in Sports: The Under-Recognized Public
Epidemic
The Marriott Hotel
Los Angeles, CAS
- 4/18/07 “Argument to Ban Boxing – Analysis of Neurological Injury”
75th Annual Meeting of the American Association of Neurological Surgeons
Washington, DC
- 3/15/07 “Can the Recognition and Treatment of Hypopituitarism After mTBI Influence Post Concussion
Syndrome”
Third International Meeting on Minor Traumatic Brain Injuries in Sports
St. Moritz, Switzerland
- 3/14/07 “How Many Concussion Are Too Many”
Third International Meeting on Minor Traumatic Brain Injuries in Sports
St. Moritz, Switzerland
- 12/8/06 “Cervical Spine Return to Play Issues”
ACSM - Advanced Team Physician Course
Omni Orlando Resort at Championsgate
Orlando, FL
- 12/8/06 “MBTI Return to Play Issues”
ACSM Advanced Team Physician Course
Omni Orlando Resort at Championsgate
Orlando, FL
- 11/9/06 “Concussion Management”
Acute Management of Mild Traumatic Brain Injury in Military Operational Settings
Department of Defense Meeting
Washington, DC
- 10/24/06 “A Case of Concussion in Pop Warner Football”
Playing It Safe
Brain Injury Association of Massachusetts Sports Injury Conference
Best Western Royal Plaza Hotel
Marlborough, MA
- 9/15/06 “Intracranial Bleeding in Boxing/The Joe Mesi Story Round 3”
American Association of Professional Ringside Physicians

2006 Annual Medical Seminar
Luxor Hotel and Casino
Las Vegas, NV

9/9/06	“Neurosurgery Head and Neck Injury Update” Emerson Hospital Fall Sports Primer Harvey Wheeler Community Center Concord, MA
05/19/06	Case Presentations Sports Related Concussion and Spine Injury Conference 2006 Brigham and Women’s Neurological Injury Center Fenway Park Boston, MA
05/13/06	“Management of Cervical Injuries and Related Disorders” Sports Medicine and Football: The 2006 Perspective AOSSM Meeting Seminole Hard Rock Hotel and Casino Hollywood, FL
05/12/06	Physical Examination Spine Sports Medicine and Football: The 2006 Perspective AOSSM Meeting Seminole Hard Rock Hotel and Casino Hollywood, FL
03/10/06	“Return to Boxing After Intracranial Hemorrhage” USA Boxing Physician Symposium 2006 US Olympic Training Center Colorado Springs, CO
03/10/06	“Acute and Chronic Brain Injuries in Boxing” USA Boxing Physician Symposium 2006 US Olympic Training Center Colorado Springs, CO
03/07/06	“Acute TBI Assessment and Secondary Prevention” Armed Forces Epidemiological Board Meeting Armed Forces Medical Intelligence Center Fort Detrick Frederick, MD
02/24/06	“Evolution of the Understanding of Concussion” Concussion in Youth Sports Summit Brain Injury Association of New Jersey Stadium Club at Giants Stadium Rutherford, NJ
10/28/05	“PASSOR: Sub-Acute Assessment and Management: Grading Systems: Initial Symptom Management: Second Impact Syndrome: When to Order Imaging” American Academy of Physical Medicine and Rehabilitation 2005 Annual Assembly Philadelphia Marriott Downtown

Philadelphia, PA

- 10/28/05 “PASSOR: Concussion/Mild Traumatic Brain Injury: Return to Play and Function Decision Making”
American Academy of Physical Medicine & Rehabilitation
2005 Annual Assembly
Philadelphia Marriott Downtown
Philadelphia, PA
- 10/27/05 “PASSOR: Vienna Conference Update and Future Decisions: Meet the Experts”
American Academy of Physical Medicine & Rehabilitation
2005 Annual Assembly
Philadelphia Marriott Downtown
Philadelphia, PA
- 6/25/05 “Catastrophic Spine Injury in American Football – effect of athlete education and rule change”
1st World Congress on Sports Injury Prevention
Holmenkollen Park Hotel
Oslo, Norway
- 5/20/05 “What’s New in Concussion Research and Overview of Prague Concussion Consensus Statement
Brigham and Women’s 2nd Annual Sports Medicine Symposium
Gillette Stadium
Foxboro, MA
- 5/20/05 “NATA/AFCA Spearing in Football Task Force Recommendations”
Brigham and Women’s 2nd Annual Sports Medicine Symposium
Gillette Stadium
Foxboro, MA
- 5/13/05 “Concussion in Sports”
Mass Academy of Family Physicians Annual Meeting
Fort Point Sheraton
Leominster, MA
- 4/30/05 “Interesting Sport Medicine Cases of Concussion in Athletes”
Concussion in Sports Conference
Penn State University
The Penn Stater Conference Center Hotel
University Park, PA
- 4/29/05 “Concussion Classification: Scales and Categories”
Concussion in Sports Conference
Penn State University
The Penn Stater Conference Center Hotel
University Park, PA
- 3/10/05 “Catastrophic Spinal Injuries in Football”
5th Annual Sports Medicine and Neurotrauma Review

Portofino Bay Hotel
Orlando, FL

- 3/10/05 “Management of Difficult Spine Cases In Athletes”
5th Annual Sports Medicine and Neurotrauma Review
Portofino Bay Hotel
Orlando, FL
- 3/12/05 “When to Retire After a Concussion”
5th Annual Sports Medicine and Neurotrauma Review
Portofino Bay Hotel
Orlando, FL
- 3/12/05 “Can Second Impact Syndrome Be Eliminated?”
5th Annual Sports Medicine and Neurotrauma Review
Portofino Bay Hotel
Orlando, FL
- 3/12/05 “Recommendations from 2004 NATA Position Statement”
5th Annual Sports Medicine and Neurotrauma Review
Portofino Bay Hotel
Orlando, FL
- 3/12/05 “2004 Prague International Concussion Conference Consensus Statement”
5th Annual Sports Medicine and Neurotrauma Review
Portofino Bay Hotel
Orlando, FL
- 3/15/05 “Concussion, Head and Neck Injuries”
Spring Sports Primer
Emerson Hospital/Harvey Wheeler Community Center
West Concord, MA
- 2/9/05 “Alanto-Occipital Dislocation – A Largely Preventable Previously Fatal Injury”
Motorsports Safety Conference
American College of Sports Medicine Team Physician Pre Conference Course
Hyatt Regency on the Boardwalk
San Antonio, TX
- 11/5/04 “National Football League (NFL) and NCAA Football Study”
IIHF Meeting
Second International Symposium on Concussion in Sport
Prague, Czech Republic
- 11/6/04 “How can we prevent diffuse brain swelling/SIS in children?”
IIHF Meeting
Second International Symposium on Concussion in Sport
Prague, Czech Republic
- 11/6/04 “When Should an Athlete Retire Following Concussion”
IIHF Meeting
Second International Symposium on Concussion in Sport

Prague, Czech Republic

9/23/04	“Primary Care Management of Closed Head Injuries” Southboro Medical Group Meeting Southboro, MA
7/18/04	“Concussion Guidelines - Current Status” University of Pittsburgh Medical Center New Developments in Sports – Related Concussion The Westin Convention Center Pittsburgh, PA
6/24/04	NFL Meeting NFL Headquarters New York, NY
6/16/04	Press Conference “Position Statement on Sports – Related Concussion” National Athletic Trainers Association Annual Meeting Baltimore, MD
5/22/04	“Diffuse Brain Injuries” The William W. Backus Hospital Trauma Department Athletic Injuries of the Head and Neck Foxwood Resort Casino Uncasville, CT
5/4/04	“Fatal Brain Injuries in American Football (1945-1999)” Sports Concussion and Spine Injury Conference Brigham and Women’s Hospital Fenway Park Boston, MA
5/1/04	“Challenges In Identifying and Treating Sports Injuries” 2004 AANS Annual Meeting Orlando Convention Center Orlando, FL
4/6/04	“Concussions in the Active Child, Adolescent, and Young Adult: Current Concepts, New Findings and Re-Education” Massachusetts Medical Society Meeting Waltham, MA
9/11/03	“Head Injury and the Risk of Alzheimer’s Disease and Depression” American Association of Ringside Physicians Aladdin Hotel Las Vegas, Nevada
7/4/03	“Effects of Dehydration on Race Car Drivers” Daytona Pepsi 400 Race Daytona International Speedway

Daytona Beach, Florida

- 6/21/03 “Cervical Spinal Stenosis – A Contraindication for Collision Sports”
International Academy for Sports Dentistry 2003 Annual Meeting
Caribe Hilton Hotel
San Juan, Puerto Rico
- 6/20/03 “Cerebral Concussion Controversies in Sports”
International Academy for Sports Dentistry 2003 Annual Meeting
Caribe Hilton Hotel
San Juan, Puerto Rico
- 5/30/03 “Emergency Care of the Spine Injured Athlete”
American College of Sports Medicine Annual Meeting
San Francisco Convention Center
San Francisco, California
- 5/30/03 “On-the-Field Management of the Spine-Injured Athlete”
American College of Sports Medicine Annual Meeting
San Francisco Convention Center
San Francisco, California
- 5/30/03 “Life After Football: History of Concussive Injuries, Onset of Neurologic Disorders, and
Mental Health Issues in former NFL Players”
American College of Sports Medicine Annual Meeting
San Francisco Convention Center
San Francisco, California
- 5/9/03 “Athletic Head and Spine Injuries and Return To Play Decisions”
3rd Annual Legacy Neurosurgery Symposium
Legacy Good Samaritan Hospital
Portland, Oregon
- 4/29/03 “Challenges in Identifying and Testing Sport Injuries”
American Association of Neurological Surgeons Annual Meeting
San Diego, CA
- 3/8/03 “Acute Concussion Evaluation and Post Concussion Syndrome”
Texas ACMS Annual Meeting
Omni Houston Hotel Westside
Houston, Texas
- 1/16/03 “ACSM Motorsports Taks Force Committee Report”
International Council Motorsports Sciences
Mirage Hotel
Las Vegas, Nevada
- 2/7/03 “Brain Fatalities in American Football Over the Last 55 Years”
3rd Annual Neurotrauma and Sports Medicine Review
Grand Floridian Hotel
Orlando, Florida

- 2/7/03 “Interesting Sports Medicine Cases: A Potpourri of Head and Spine Cases”
3rd Annual Neurotrauma and Sports Medicine Review
Grand Floridian Hotel
Orlando, Florida
- 2/7/03 “Ongoing Concussion Controversy”
3rd Annual Neurotrauma and Sports Medicine Review
Grand Floridian Hotel
Orlando, Florida
- 2/8/03 “On-going Cervical-Spinal Stenosis Controversy”
3rd Annual Neurotrauma and Sports Medicine Review
Grand Floridian Hotel
Orlando, Florida
- 12/5/02 “Closed Head Injuries”
Thirtieth Annual Meeting Cervical Spine Research Society
Fontainebleu Hilton Hotel
Miami Beach, Florida
- 12/5/02 “On-the-Field Evaluation of Head Injuries”
Thirtieth Annual Meeting Cervical Spine Research Society
Fontainebleu Hilton Hotel
Miami Beach, Florida
- 9/26/02 “Concussion Guidelines and Return to Play Criteria”
Greater New York State Orthopedic Association
Saratoga, N.Y.
- 7/20/02 “Concussion in Sports Medicine”
New Developments in Sports Related Concussion
University of Pittsburgh School of Medicine
Pittsburgh, PA
- 6/19/02 “Concussion in Sports Medicine”
Sports Medicine Core Curriculum Series Harvard Medical School
Massachusetts General Hospital
Boston, MA
- 6/16/02 “Introduction to the Problem: The Grading Scale and RTP Dilemma”
National Athletic Trainers Association: Annual Meeting
Dallas, TX
- 6/5/02 “Concussion in Athletic Sports-Controversies Regarding Grading and Return to Play
Guidelines”
Connecticut Athletic Trainers Association Annual Meeting
Trinity College
Hartford, Connecticut
- 6/1/02 “On-the-Field Evaluation of Head and Neck Injured Athletes”
American College of Sports Medicine: Annual Meeting
St. Louis, MO
- 5/31/02 “Prehospital Care of the Spine-Injured Athlete: A Critical Look at the Task Force Document”

American College of Sports Medicine: Annual Meeting
St. Louis, MO

5/31/02

“On-the-Field Evaluation of Head and Neck Injuries”
American College of Sports Medicine: Annual Meeting
St. Louis, MO

5/30/02

“The Pros and Cons of Neuropsychological Testing in Concussion”
“The Practical Use of Neuropsychological Testing: Clinically and in Research”
American College of Sports Medicine: Annual Meeting
St. Louis, MO

4/13/02

“Grading Scale for Concussion in Sports”
American Academy of Neurology
Denver, Colorado

2/16/02

“Overview of Concussion”
2nd Annual Neurotrauma and Sports Medicine Review
Alleghany Hospital, Pittsburgh, PA
Caribe Royale Resort Suites and Villas
Orlando, Florida

2/16/02

“Head Injury in Recreational Sports”
2nd Annual Neurotrauma and Sports Medicine Review
Alleghany Hospital, Pittsburgh, PA
Caribe Royale Resort Suites and Villas
Orlando, Florida

2/16/02

“Guidelines for Return to Competition after a Mild Head Injury”
2nd Annual Neurotrauma and Sports Medicine Review
Alleghany Hospital, Pittsburgh, PA
Caribe Royale Resort Suites and Villas
Orlando, Florida

11/3/01

“Panel Discussion: When to retire from sports”
European Sports Medicine Conference
Vienna, Austria

11/3/01

“Assessing Concussions: Review of Grading Systems”
European Sports Medicine Conference
Vienna, Austria

10/1/01

“Neurosurgical Management of Athletic Injuries”
Congress of Neurological Surgeons 51st Annual Meeting
San Diego, California

10/1/01

“On-the-Field Management of Head and Neck Injuries”
Kerlin Jobe Clinic
Los Angeles, California

7/28/01

New Developments in Sports Related Concussion
“Models of Concussion Management: Current Models of Concussion

Management: Where Are We Headed?"

University of Pittsburgh School of Medicine Center for Continuing Education in the Health Sciences, Department of Orthopedic Surgery, UPMC Health System Center for Sports Medicine, Western Psychiatric Institute and Clinic

Hilton Hotel, Pittsburgh, PA

- 6/8/01 "Second Impact Syndrome"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 6/8/01 "Return to Play After Concussion"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 6/8/01 "Concussion Grading Systems"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 6/8/01 "Biomechanical and Pathophysiology of Head Injury"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 6/8/01 "Overview of Concussion"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 6/8/01 "Guidelines to the Evaluation of Mild Traumatic Brain Injury in Motor Vehicle Accidents and Work Injuries"
Manitoba Public Insurance and the Workers Compensation Board of Manitoba Continuing Medical Education Guest Speakers Series
Winnipeg, Canada
- 5/31/01 "On-the-Field Evaluation of Head and Neck Injuries"
American College of Sports Medicine Annual Meeting
Baltimore Convention Center
Baltimore, Maryland
- 5/31/01 "Return to Play Decisions Following Concussion: Controversies and Dilemmas"
American College of Sports Medicine Annual Meeting
Baltimore Convention Center
Baltimore, Maryland
- 5/30/01 "NASCAR Deaths: Were they preventable"
American College of Sports Medicine Annual Meeting
Baltimore Convention Center
Baltimore, Maryland

- 5/19/01 “Concussion: It’s Effect Upon the Brain”
Salem Sports Medicine Conference Head and Neck Injuries in Athletes
Colonial Sheraton
Lynnfield, Massachusetts
- 5/7/01 “On-the-Field Evaluation of Athletic Head and Spine Injury”
New York State Public High School Athletic Association
Carrier Circle Holiday Inn
Syracuse, New York
- 5/7/01 “Evaluation, Treatment and Return to Play Decisions Regarding Athletic Head and Spine Injury”
New York State Public High School Athletic Association
Carrier Circle Holiday Inn
Syracuse, New York
- 5/5/01 “Athletic Cervical Spine Injuries”
American Academy of Neurology 53rd Annual Meeting
Pennsylvania Convention Center
Philadelphia, PA
- 3/19/01 “NASCAR Deaths: Were they preventable”
Neurotrauma and Sports Medicine for the New Millennium
Department of Neurosurgery, Allegheny General Hospital
The Shadow Ridge Hotel and Conference Center
Park City, Utah
- 3/19/01 “Adult vs. Pediatric Athletic Spine Injuries: Management Issues”
Neurotrauma and Sports Medicine for the New Millennium
Department of Neurosurgery, Allegheny General Hospital
The Shadow Ridge Hotel and Conference Center
Park City, Utah
- 3/19/01 “Athletic Head and Spinal Cord Injuries”
Neurotrauma and Sports Medicine for the New Millennium
Department of Neurosurgery, Allegheny General Hospital
Park City, Utah
- 3/19/01 “On-the-Field Management of Athletic Head Injuries”
Neurotrauma and Sports Medicine for the New Millennium
Department of Neurosurgery, Allegheny General Hospital
The Shadow Ridge Hotel and Conference Center
Park City, Utah
- 3/19/01 “Overview of Concussion”
Neurotrauma and Sports Medicine for the New Millennium
Department of Neurosurgery, Allegheny General Hospital
The Shadow Ridge Hotel and Conference Center
Park City, Utah

- 12/2/00 “Second Impact Syndrome”
Sports Neurology Injuries of the Head and Spine
Hospital for Special Surgery, Burke Rehabilitation Hospital and the Weill Medical College of
Cornell University
Uris Auditorium
New York, New York
- 11/18/00 “Catastrophic Football Head Injuries”
Southwest Chapter American College Sports Medicine 2000 Annual Meeting
Bahia Hotel
San Diego, CA
- 11/3/00 “Practical Management of Head Injuries and Concussion in Sport
British Association of Sports and Exercise Medicine
Hilton Puckrup Hall
Tewkesbury, Gloucestershire England
- 9/16/00 “Diagnosis and Nonsurgical Treatment and Rehabilitation of Degenerative Cervical
Conditions”
7th Annual Symposium New Hampshire Musculoskeletal Institute
Saint Anselm College, Manchester, NH
- 06/04/99 “On-The-Field Evaluation of Head and Neck Injuries”
American College of Sports Medicine: Annual Meeting
Washington State Convention and Trade Center
Seattle, Washington
- 06/03/99 “Concussion Symposium”
American College of Sports Medicine: Annual Meeting
Washington State Convention and Trade Center
Seattle, Washington
- 05/28/99 “Concussion: Mechanisms and Classifications”
Sports Related Concussions and Nervous System Injury Conference
Orlando Regional Healthcare System
Hotel Royal Plaza
Orlando, Florida
- 12/10/98 “Headaches”
Middlesex Community College Community Lecture
Bedford, Massachusetts
- 11/08/98 “Sports Related Concussion Controversies: Neuropsychological Aspects and Return to
Play Issues:
Traumatic Brain Injury and Stroke Conference
Healthsouth Braintree Rehabilitation Hospital
Royal Sonesta Hotel
Boston, Massachusetts
- 06/06/98 “Examination of the Spine”
American College of Sports Medicine: Annual Meeting

Orange County Convention Center
Orlando, Florida

- 06/05/98 “Age, Ethical, Sociological, and Safety Issues in Boxing Especially as Regards Head Injury”
American College of Sports Medicine: Annual Meeting
Orange County Convention Center
Orlando, Florida
- 06/02/98 “Age in Boxing: Should there be an age limit”
XXVI FIMS World Congress of Sports Medicine
Orange County Convention Center
Orlando, Florida
- 05/15/98 “Return to Sports Criteria Following Concussion”
Innovative Symposia/Sports Related Concussion
Smithtown Sheraton
Long Island, New York
- 05/15/98 “Concussion Classification and Implementation”
Innovative Symposia/Sports Related Concussion
Smithtown Sheraton
Long Island, New York
- 05/08/98 “Fitness Over Forty and Fifty”
Lincoln-Sudbury Auxiliary Board Meeting
Pierce House, Lincoln
- 04/24/98 “The Concussion Controversy/Grading and Return to Play”
Sports Medicine Update ‘98 and NEACSM Spring Meeting
Sunrise/Mediplex, Concord, MA
Program Co-chair
- 04/07/98 “Living With Low Back Pain”
Emerson Hospital Community Lecture Series
Emerson Hospital
Concord, Massachusetts
- 03/17/98 “Head Injury in Sports”
Boston Medical Center
Department of Rehabilitation Medicine
Boston, Massachusetts
- 03/07/98 “Safety Issues In Boxing Regarding Head Injury”
Sports Related Concussion and Nervous System Injuries
Orlando Regional Healthcare System
Caribe Royale Resort
Lake Buena Vista, Florida
- 02/06/98 “Neurologic and Vascular Causes of Upper Extremity Problems
(Cervical Spine Stingers, Peripheral Nerve, Brachial Plexus, Thoracic Outlet)
American College of Sports Medicine’s Team Physician Course
San Diego Princess Resort
San Diego, California

02/06/98 “Cervical Spine Injury, Extra Axial Facet, Disk, Radicular Symptoms, and Transient Quadriplegia”
 American College of Sports Medicine’s Team Physician Course
 San Diego Princess Resort
 San Diego, California

02/06/98 “Epilepsy and Sports Participation”
 American College of Sports Medicine’s Team Physician Course
 San Diego Princess Resort
 San Diego, California

02/06/98 “Concussion: Definition, Classification, and Return to Play”
 American College of Sports Medicine’s Team Physician Course
 San Diego Princess Resort
 San Diego, California

02/06/98 “Problems and Perils in On-field Management of Head and Neck Injury”
 Hands-on Exam Workshop
 American College of Sports Medicine’s Team Physician Course
 San Diego Princess Resort
 San Diego, California

02/06/98 “Physical Examination of the Cervical Spine”
 Hands-on Exam Workshop
 American College of Sports Medicine’s Team Physician Course
 San Diego Princess Resort
 San Diego, California

01/31/98 “Concussion/Closed Head Trauma/Convulsions”
 Panel Discussion
 The Jockey Club/Concussion and Head in Sport
 The Gloucester Hotel
 Harrington Gardens
 London, England

01/30/98 “Concussion in Sport and the Second Impact Syndrome”
 The Jockey Club/Concussion and Head in Sport
 The Gloucester Hotel
 Harrington Gardens
 London, England

10/18/97 “The On-Field Management of Athletic Head and Spine Injuries”
 ACC Keynote Address
 New Zealand Sports Medicine Partners In Performance Conference
 Millennium Hotel
 Christchurch, New Zealand

10/18/97 “Second Impact Syndrome:”
 ACC Keynote Address
 New Zealand Sports Medicine Partners in Performance Conference
 Millennium Hotel
 Christchurch, New Zealand

10/17/97 “When To Return to Collision Sports After Concussion”
ACC Keynote Address: Tom Anderson Trust Lecture
New Zealand Sports Medicine Partners in Performance Conference
Millennium Hotel
Christchurch, New Zealand

10/16/97 “The Return to Sport After Cervical Spine Injury”
Sports Physician Day
New Zealand Sports Medicine Partners in Performance Conference
Millennium Hotel
Christchurch, New Zealand

10/14/97 “Catastrophic Sports Injuries”
New Zealand Sports Medicine Conference
Hawkes Bay Chapter
Hawkes Bay, New Zealand

10/14/97 “Second Impact Syndrome”
Grand Rounds Presentation
Napier Hospital
Napier, New Zealand

10/13/97 “When to Return to Competition After Head and Spine Injury”
New Zealand Sports Medicine Conference
Whangarei, New Zealand

09/25/97 “Athletic Head Injury Guidelines”
New England American College of Sports Medicine: Fall Meeting
Rhode Island Convention Center
Providence, R.I.

05/22/97 “Head Injury In Football”
American College of Sports Medicine: Annual Meeting
Denver, Colorado

05/01/97 “Should There Be An Age Limit in Boxing”
WBC: First Medical Conference on Boxing Safety
Aruba

03/14/97 “Head Injury in Boxing”
Ringside Physician Course
Colorado Springs, Colorado

02/10/97 “Concussion Guidelines: Controversies and Implementation”
Allegheny General Hospital Sports Medicine Meeting
Caribe Royale Resort
Lake Buena Vista, Florida

01/12/97 “Neurological Injuries and the Athlete”
Breakfast Seminar
AANS 65th Annual Meeting
Colorado Convention Center
Denver, Colorado

11/22/96	<p>“Catastrophic Head Injury” <u>Oklahoma Spine Institute</u> Oklahoma City, Oklahoma</p>
11/08/96	<p>“Head and Face Protection for the Athlete” <u>New England American College of Sports Medicine: Fall Meeting</u> Boxboro, MA</p>
10/26/96	<p>“Ask the Experts” Fitness and Beauty Cruise Norwegian Cruise Line</p>
10/23/96	<p>“Weekend Warrior Woes” Fitness and Beauty Cruise Norwegian Cruise Line</p>
10/22/96	<p>“Exercise for Health versus Fitness” Fitness and Beauty Cruise Norwegian Cruise Line</p>
10/02/96	<p>“Head Injury and the Athlete” <u>Pediatric Day Conference</u> Waterbury, CT</p>
06/01/96	<p>“Boxing and Medicine” <u>American College of Sports Medicine: Annual Meeting</u> Cincinnati, OH</p>
05/31/96	<p>“On-the-Field Evaluation of Head and Neck Injuries” Clinical Workshop <u>American College of Sports Medicine: Annual Meeting</u> Cincinnati, OH</p>
05/31/96	<p>“Positive and Negative Effects of Head Protection” NCAA Colloquium <u>American College of Sports Medicine: Annual Meeting</u> Cincinnati, OH</p>
05/29/96	<p>“Management of Head and Neck Injuries” <u>American College of Sports Medicine: Annual Meeting</u> Cincinnati, OH</p>
5/18/96	<p>“Head and Neck Injuries in Sports: Assessment in On-The-Field Management” Sports Medicine For The Rheumatologist <u>American College of Rheumatology</u> Phoenix, AZ</p>
4/27/96	<p>“Diffuse Brain Injuries”; “Spinal Stenosis, Cord Neuropraxia, Transient Quadriplegia”; “Athletic Injuries of the Head and Neck” <u>The William W. Backus Hospital Trauma Department Program</u> Foxwoods Resort Casino, CT</p>

03/14/96 “Boxing Injuries”
 Emory University School of Medicine
 Summer Games: Sports Medicine Review
 Atlanta, GA

02/09/96 “Concussion: Definition, Classification, and Return to Play”;
 “Epilepsy and Sports Participation”;
 “Cervical Spine Injury, Extra Axial Facet, Disk, Radicular
 Symptoms, and Transient Quadriparesis”;
 “Neurologic and Vascular Causes of Upper Extremity Problems
 (Cervical Spine, Stringers, Peripheral Nerve, Brachial Plexus, Thoracic Outlet)”;
 “Hands-on Workshop - Physical Examination of the Spine”
 American College of Sports Medicine: Team Physician Course - Part I
 San Diego, CA

01/27/96 “Strength Aerobics - The Next Stage in Personal Fitness”
 McKenzie Speaker
 Sports Injuries Update
 Lake Placid Sports Medicine Society Conference
 Lake Placid, NY

01/26/96 “Epidemiology and Pathophysiology of Athletic Head Injury”
 “Acute Assessment of Athletic Head and Neck Injuries”
 “Surgical Treatment of Athletic Head and Spine Injuries:
 Who can Safely Return to Competition”
 Sports Injuries Update
 Lake Placid Sports Medicine Society Conference
 Lake Placid, NY

01/25/96 “Athletic Neck and Cervical Spine Trauma”
 Albany Medical College
 Albany, NY

01/07/96 “Second Impact Syndrome”
 Eastern Athletic Trainers Association Annual Meeting
 Boston, MA

12/14/95 “Catastrophic Head and Neck Injury in Sports”
 “Evaluation of Current Guidelines for Head Injury in Sports”
 “General Spinal Stenosis in Contact Sports”
 Rehabilitation Sports Medicine VIII: Controversies in Sports Medicine.
 The Rehabilitation Institute of Chicago
 Chicago, IL

11/09/95 “Strength Aerobics”
 Walden Rehabilitation & Nursing Center
 Concord, MA

10/23/95 “Weekend Warrior Woes: How to Avoid Exercise Injuries”
 Fitness and Beauty Cruise
 Norwegian Cruise Line

10/22/95 “Exercise for Health vs Fitness (How Much is Enough?)”
Fitness and Beauty Cruise
Norwegian Cruise Line

10/13/95 “Closed Head Injury”
“Transient Quadriplegia in Sports”
Together in College Health: Surviving and Thriving
Combined Annual Meeting: New York State Health Association and New England College
Health Association
Tarrytown, NY

10/11/95 “Catastrophic Sports Injuries: Functional Spinal Stenosis”
“Sudden Death Syndrome”
Emerson Hospital Neurology Conference
Concord, MA

08/24/95 “Torso and Genitourinary Tract Injuries”
Medicine in the Last Frontier/Medical World Conference
Alaska

08/24/95 “A Team Physician’s Sports Medicine Bag”
Medicine in the Last Frontier/Medical World Conference
Alaska

08/21/95 “Sports Injuries in Young Athletes”
Medicine in the Last Frontier/Medical World Conference
Alaska

08/21/95 “How to Write a Precise Aerobic Exercise Prescription”
Medicine in the Last Frontier/Medical World Conference
Alaska

08/20/95 “Conditioning of Cardiovascular System: A Machiavellian Approach to Health”
Medicine in the Last Frontier/Medical World Conference
Alaska

06/14/95 “Guidelines for Return to Competition After Mild Brain Injury in Sports”
National Athletic Trainers’ Association
Indianapolis, IN

06/02/95 “On-The-Field Evaluation of Head and Neck Injuries”
Clinical Workshop
American College of Sports Medicine: Annual Meeting
Minneapolis, MN

05/23/95 “Trauma to the Head and Spine”
Connecticut Athletic Trainers’ Association
New Britain, CT

05/13/95 “Cervical Radiculopathy - Painless vs. Painful: A Conceptual Model and
Management Approach”
1st Annual Combined Meeting - Puget Sound & Portland Spine Interest Groups
Seattle, WA

- 05/07/95 “Current Treatment Recommendations for Concussions and the Burner Syndromes”
Prevention and Management of High School Football Injuries
Salem Orthopedic Surgeons, Inc.
Waltham, MA
- 04/28/95 “Management of Sports-Related Spine Injuries”
Keynote Address
Contemporary Management of Lumbar Spine Disorders
The NeuroScience Institute at Mercy
Oklahoma City, OK
- 04/23/95 “Assessment of Acute and Repetitive Head Injuries”;
“Management of Cervical Injuries”
Clinical Congress: Decision Making and Sports Injuries
Braintree Hospital Rehabilitation Network
Randolph, MA
- 04/21/95 “Return to Play Criteria After Cervical Spine Injury”
“Cervical Spine Injuries Workshop: Case Studies and Discussion”
Controversies in Decision Making: Neurological Sports Injuries
University of Miami School of Medicine
Lake Buena Vista, FL
- 04/01/95 “Exercise for Health vs Fitness”
Mens Health Day
Emerson Hospital
Concord, MA
- 03/03/95 “Catastrophic Injury of the Brain and Spinal Cord”
Ninth Annual Neurologically Impaired Individual Symposium
St. Mary’s Hospital
Richmond, VA
- 02/21/95 “Head Injuries”
Department of Physical Medicine & Rehabilitation
Resident Didactic Seminars
Tufts University School of Medicine
Newton Wellesley Hospital
Natick, MA
- 02/15/95 “Chest and Abdominal Injuries”
Sports Medicine: An In-Depth Review
American Academy of Family Physicians
Dallas, TX
- 02/14/95 “Closed Head Injuries”
“Entrapment Neuropathies”
“Spine: History and Exam Skills Workshop”
Sports Medicine: An In-Depth Review
American Academy of Family Physicians
Dallas, TX

- 01/25/95 “Athletic Head and Spine Injuries: Recognition of
On-The-Field Care and Return to Play Guidelines”
Sports Medicine Symposium 1995
North Broward Medical Center
Pompano Beach, FL
- 12/07/94 “The Prevention of Sports Related Neurological Injuries in American Football: Rules,
Equipment, and Surfaces”;
“Guidelines for Return to American Football
After an Episode of Transient Quadriplegia”
American Society for Testing and Materials Symposium on Safety in American Football
Phoenix, AZ
- 11/19/94 “Prevention, Treatment, and Return to Play Criteria for Head & Neck Injuries in Sports”
“ACSM and the Sports Medicine Professional”
Greater New York Regional Chapter American College-of-Sports Medicine
New York, NY
- 11/04/94 “When to Return to Contact Collision Sports After an Episode of Transient Quadriplegia”
New England Chapter American College of Sports Medicine
Boxborough, MA
- 09/14/94 “Spinal Stenosis”
Emergency Department Medical Staff Conference
Emerson Hospital
Concord, MA
- 06/11/94 “Assessment and Treatment of Traumatic Cervical Spine/Cord Injury”
“Guidelines for Return to Contact Collision Sports After Traumatic Cervical
Spine/Cord Injury”
National Athletic Trainers Association Annual Meeting and Clinical Symposium
Dallas, TX
- 06/04/94 “On-the-Field Evaluation and Management of Head and Spinal Cord Injury”
American College of Sports Medicine: Annual Meeting
Indianapolis, IN
- 06/03/94 “Concussion: Management and Return to Competition”
American College of Sports Medicine: Annual Meeting
Indianapolis, IN
- 06/02/94 “Traumatic Fatal and Non-Fatal Catastrophic Sports Injuries”
American College of Sports Medicine: Annual Meeting
Indianapolis, IN
- 06/02/94 “Cervical Spinal Stenosis and Contact Sports”
American College of Sports Medicine: Annual Meeting
Indianapolis, IN
- 05/20/94 “Return to Sport After Head Injury”
“Head and Neck Injuries”
“The Preparticipation Examination”

Caribbean Sports Medicine Congress
Bridgetown, Barbados, WI

- 04/17/94 “Cerebral Concussion in Sport: Prevention and Management”
Mild Brain Injury Summit National Athletic Trainers Association
Washington, D.C.
- 03/23/94 “Neck Injuries: The Great Debate: Personal Experience and Perspectives of Our Experts”
Panelist: Neck Injuries Workshop Case Studies and Discussion
Controversies in Decision Making: Neurological Sports Injuries
University of Miami School of Medicine and the Miami Project to Cure Paralysis
Lake Buena Vista, FL
- 03/22/94 “Catastrophic Sports Injuries: Which Sports Are at Greatest Risk and Why”
“When to Return to Contact/ Collision Sports After Head and Spine Injury”
16th Annual Family Practice Review
Bayfront Medical Center
St. Petersburg Beach, FL
- 03/21/94 “When is it Safe to Return to Contact Sports?”
Panelist: Head Injury Workshop - Case Studies and Discussion
Controversies in Decision Making: Neurological Sports Injuries
University of Miami School of Medicine and the Miami Project to Cure Paralysis
Lake Buena Vista, FL
- 03/20/94 “Prevention of Sports-Related Neurological Injuries: Rules, Equipment, and Surfaces,”
Moderator: Peripheral Nerve Injuries Workshop - Case Studies and Discussion
Controversies in Decision Making: Neurological Sports Injuries
University of Miami School of Medicine and the Miami Project to Cure Paralysis
Lake Buena Vista, FL
- 03/12/94 “Acute and Second Impact Syndrome Head Injury”
First Annual Ringside Physicians Course
United States Amateur Boxing, Inc.
Colorado Springs, CO
- 03/08/94 “Health Benefits of Physical Fitness,”
Second Annual New Dimensions in Research Conference
Mabon Securities Corporation
Beaver Creek, CO
- 03/05/94 “Managing Head and Neck Injuries”
Sports Med Boston: “New Options for Treating the Injured Athlete”
Back Pain Society
Danvers, MA
- 01/21/94 “Neck Injuries”
Sport Med 94
Toronto, Canada
- 01/21/94 “Head Injuries in Sport”
The Tom Pashby Sport Safety Fund Lecture
Sport Med 94
Toronto, Canada

- 11/19/93 “When is it Safe to Return to Contact Sports After a Head Injury”
American Medical Tennis Association Omni Specialty Sports Medicine Update
Palm Springs, CA
- 11/18/93 “When is it Safe to Return to Contact Sports After a Cervical Spine Injury?”
American Medical Tennis Association Omni Specialty Sports Medicine Update
Palm Springs, CA
- 11/09/93 “The Female Triad: Disordered Eating, Amenorrhea, and Osteoporosis”
Community Health Education Program
Emerson Hospital
Concord, MA
- 09/06/93 “Head and Neck Injury”
XVth World Congress of Neurology
Vancouver, B.C., Canada

- 08/14/93 “Epidemiology, Recognition and Acute Management of Closed Head Injury/ Concussion”
“Return to Competition After Head Injury”
“Fractures and Dislocations of Cervical Spine”
“Epidemiology, Evaluation and Treatment of Traumatic Spinal Cord Injury:
Return to Competition”
“Case Presentations: Transient Quadriplegia”
ACSM CAQ Board Review Course for the Certification Examination
in Sports Medicine
San Francisco, CA
- 08/13/93 “Functional Anatomy & Biomechanics:
Examination of the Patient with Low Back Pain”
“Lumbar Spinal Stenosis: Dx and Management”
“Indications for Surgery and Return to Competition After Lumbar Spine Injury”
“Legal Aspects of Sports Medicine and Role of the Team Physician”
“On-field Management and Evaluation of Acute Spinal Cord Trauma”
ACSM CAQ Board Review Course for the Certification Examination
in Sports Medicine
San Francisco, CA
- 06/11/93 “Case Studies: Epidemiology, Assessment, and Return to Play Criteria
for Head Injuries in Sports”
National Athletic Trainers Association Annual Meeting and Clinical Symposium
Kansas City, MO
- 06/05/93 “Spinal Stenosis: Transient Quadriplegia and Football”
40th Annual Meeting American College of Sports Medicine
Seattle, WA
- 06/03/93 “Physician Continuing Medical Education and Opportunities”
Symposium: 40th Annual Meeting American College of Sports Medicine
Seattle, WA
- 05/20/93 “Where is Boxing in This Process?”
International Symposium on Head and Neck Injuries in Sports American Society for Testing
and Materials
Atlanta, GA
- 05/14/93 “Sports Medicine in Primary Care”
“Athletic Catastrophic Sports Injury Study (1931-1987):
Which Sports Are at Greatest Risk and What is Being Done to Reduce Injury”
“Medical Coverage of Games and Events”
“Legal Liabilities of the Team Physician”
“How to Live Painlessly With Your Low Back Disorder”
Fourth Annual Sports Medicine Conference on the Beach Halifax Medical Center Family Practice
Residency Program
Daytona Beach, FL
- 05/07/93 “Women’s Triad”
Conference Chairman
Eighth Annual Sports Medicine Update 93
Westford, MA

05/06/93 “Returning to Contact Sports After a Head Injury:
Relative and Definite Contraindications”
Department of Pediatrics, Emerson Hospital
Concord, MA

04/15/93 “The Prevention and Treatment of Athletic Spine Injuries”
Grand Rounds
Nashua Memorial Hospital, NH

03/06/93 “Specific Problems and Pearls in Boxing”
“Indications for Surgery and Return to Competition After Lumbar Spine Injury”
Team Physician Course Parts II and III: American College of Sports Medicine
Orlando, FL

03/05/93 “Transient Quadriplegia (Symptoms, Pathomechanics, Work-up, Return to Play,
Controversies, Case Presentations and Discussion)
(With Stanley A. Herring, M.D.)
Team Physician Course Part III: American College of Sports Medicine
Orlando, FL

03/04/93 “Brachial Plexus Injuries”
“Epidemiology, Recognition, and Acute Management of Head Injuries”
“Return to Play Criteria After Head Injury”
“Epilepsy and the Athlete”
Team Physician Course Part II and III: American College of Sports Medicine
Orlando, FL

03/02/93 “Toward a Lifetime of Family Fitness”
Health and Fitness in the 90’s
The Thoreau Club of Concord
Concord, MA

02/23/93 “Legal Liabilities of the Team Physician”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Scottsdale, AZ

02/22/93 “Epilepsy and the Athlete”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Scottsdale, AZ

01/29/93 “Catastrophic Sports Injuries: Which Sports are at Greatest Risk and Why?”
Southeast Regional Chapter: American College of Sports Medicine
Norfolk, VA

01/29/93 “Medical Risks of Boxing/Is Boxing a Sport?”
Southeast Regional Chapter: American College of Sports Medicine
Norfolk, VA

01/25/93 “Head and Spine Injuries in Athletes”
Chelmsford High School
Chelmsford, MA

01/23/93 “Head and Neck Injuries in Athletes”
Comprehensive Review Course in Sports Medicine
The College of Physicians and Surgeons
Department of Orthopaedic Surgery
Columbia University, New York
Barbados, West Indies

01/12/93 “Women’s Health Issues: Ask the Doctor”
Health and Fitness in the 90’s
The Thoreau Club of Concord
Concord, MA

12/23/92 “Overview of Head Injuries in the Athlete,”
St. Vincent Hospital Grand Rounds
Worcester, MA

11/18/92 “Head and Neck Injury Reduction in Football: A Sixty-Year Effort”
American Medical Tennis Association
Palm Springs, CA

11/13/92 “Low Back Pain: Etiology, Diagnosis, and Treatment”
“Spinal Cord Injuries”
American Academy of Family Physicians 6th Annual Family Practice Weekend & Sports
Medicine Conference
Huntington, WV

11/10/92 “Exercise: What’s the Right Dosage for You?”
Health and Fitness in the 90’s
The Thoreau Club of Concord
Concord, MA

10/14/92 “Cervical Spine Injuries”
Australian College of Sports Physicians: National Annual Scientific Conference in
Sports Medicine
Perth, Western Australia

10/13/92 “The Team Physician”
Australian College of Sports Physicians: National Annual Scientific Conference in
Sports Medicine
Perth, Western Australia

10/12/92 “Catastrophic Sports Injuries”
Keynote Address
Australian College of Sports Physicians: National Annual Scientific Conference in
Sports Medicine
Perth, Western Australia

10/06/92 “Signs and Symptoms of Anabolic Steroid Abuse”
Commonwealth of Massachusetts
Project Alliance Training Program
Burlington, MA

08/22/92 “Back Injuries in Tennis Players”
 Society of Tennis Medicine and Science
 Yale University
 New Haven, CT

07/23/92 “Fitness for Good Health”
 Concord Prison Outreach
 Concord, MA

06/05/92 “Serious Head and Neck Injury Reduction in Football - A 60-Year Effort”
 New England Neurosurgical Society,
 Waltham, MA

05/29/92 “Head Injury in Sports”
 39th Annual Meeting American College of Sports Medicine
 Dallas, TX

05/28/92 “Team Physician Certification,”
 39th Annual Meeting American College of Sports Medicine
 Dallas, TX

05/27/92 “Head, Neck, and Spine: Head and Neck Injury”
 Chair: Physician Case Presentations
 39th Annual Meeting American College of Sports Medicine
 Dallas, TX

05/13/92 “Steroid Abuse in the Athlete”
 Spring Symposium on Sports Medicine
 Milford Whitinsville Regional Hospital
 Milford, MA

05/01/92 “The Anabolic Steroid Epidemic”
 7th Annual Sports Medicine Update 92
 Westford, MA

04/14/92 “Disc Herniation in the Athlete: When to Operate?”;
 “On-field Emergencies to the Spine and Neck”
 The National Sportsmedicine Conference ‘92
 Orlando, FL

03/11/92 “Steroids - The Threat and Dangers,”
 Assabet Valley Regional Vocational School
 Marlborough, MA

02/26/92 “Lumbar Spinal Stenosis: Evaluation and Treatment”
 Leominster Hospital Grand Rounds
 Leominster, MA

02/24/92 “Head Trauma in Adolescents”
 Medical Student Education
 Emerson Hospital
 Concord, MA

- 02/02/92 “Sports Medicine-Sports Science: Bridging the Gap”;
“Head, Neck, and Extraspinal Nerve Injury in Contact Sports”;
“Acute and Chronic Brain Injuries in Boxing and Other Collision Sports”;
“Return to Collision Sports After Athletic Cervical and Lumbar Spine Injury”
Third National Kaiser Permanente Sports Medical Conference
Snowbird, UT
- 01/13/92 “Steroids - The Threat and Dangers”
Marlborough High School Athletic Department
Marlborough, MA
- 12/14/91 “Epidemiology, Assessment, and Criteria for Return to Play in Cervical Spine Injuries”;
“Epidemiology, Assessment, and Return to Play Criteria for Head Injuries in Sports”
Rehabilitation Sports Medicine IV: Injuries to the Head and Neck in Sports
Rehabilitation Institute of Chicago
Chicago, IL
- 12/04/91 “Steroids - The Threat and Dangers”
Sports Injury Symposium: The Massachusetts Interscholastic Athletic Association
Waltham, MA
- 11/22/91 “Anabolic Steroid Abuse in Athletics”
American Medical Tennis Association
Palm Springs, CA
- 11/21/91 “Catastrophic Sports Injuries in High School and College Sports”
American Medical Tennis Association
Palm Springs, CA
- 10/22/91 “Catastrophic Sports Injuries: Which Sports Are at Greatest Risk and What is Being Done to
Reduce Injury”
Harvard Community Health Plan
Wellesley, MA
- 10/19/91 “Etiology, Biomechanics, Diagnosis, and Treatment of Athletic Low Back Pain”
University of Texas Health Center
Tyler, TX
- 10/18/91 “Etiology, Biomechanics, Diagnosis, and Treatment of Athletic Low Back Pain”
Tom Landry Sports Medicine Center
Dallas, TX
- 10/18/91 “Catastrophic Sports Injuries: Which Sports Are at Greatest Risk and What is Being Done to
Reduce Injury”
Texas College of Osteopathic Medicine
Fort Worth, TX
- 10/17/91 “Catastrophic Sports Injuries: Which Sports Are at Greatest Risk and What is Being Done to
Reduce Injury”
Texas A&M University
College Station, TX

10/17/91 “Etiology, Biomechanics, Diagnosis, and Treatment of Athletic Low Back Pain”
Texas Woman’s University
Houston Center, TX

10/10/91 “Head and Spine Injuries in Athletes”
Maine Medical Center
Portland, ME

09/27/91 “Catastrophic Sports Injuries: Sports at Risk?”
Medical Staff Clinical Meeting
Emerson Hospital
Concord, MA

09/08/91 “Catastrophic Spinal Injuries in Scholastic Sports”
American Academy of Neurological and Orthopaedic Surgeons Fifteenth Annual Scientific Convention
Las Vegas, NV

09/07/91 “The Boxing Controversy: A Neurosurgeon’s Perspective”
American Academy of Neurological and Orthopaedic Surgeons Fifteenth Annual Scientific Convention
Las Vegas, NV

09/07/91 “When To Return to Collision Sports After Athletic Head and/or Cervical Spine Injury”
American Academy of Neurological and Orthopaedic Surgeons Fifteenth Annual Scientific Convention
Las Vegas, NV

09/06/91 “Catastrophic Spine Injuries in Scholastic Sports: Which Are at Greatest Risk and What is Being Done to Reduce Injury”
1991 Presidential Guest Lecturer
American Academy of Neurological and Orthopaedic Surgeons Fifteenth Annual Scientific Convention
Las Vegas, NV

07/27/91 “Low Back Pain: Etiology, Diagnosis, and Treatment”
The Burdenko Water and Sports Therapy Institute
Boston, MA

07/27/91 “Catastrophic Spine Injuries in All School Sports”
American Academy of Sports Physicians
Boston, MA

06/12/91 “Health Effects of Regular Exercise”
Concord Prison Outreach
Concord, MA

06/07/91 “Acute and Chronic Brain Injury in Contact Sports”;
“Evaluation of the Athlete for Return to Sports After Concussion”
Snake River Medical Forum
Lewiston, ID

06/01/91 “Boxing - A Historical Perspective”;
“Professional Boxing - One Neurosurgeon’s Viewpoint”
American College of Sports Medicine Annual Meeting
Orlando, FL

05/31/91 “Criteria For Return to Play Following Cervical Injuries”
American College of Sports Medicine Annual Meeting
Orlando, FL

05/17/91 “Carotid Artery Stenosis”
Medical Staff Clinical Scientific Meeting
Emerson Hospital
Concord, MA

05/07/91 “Sports Injuries”
Milford Regional Hospital Grand Rounds
Milford, MA

05/03/91 “When to Return to Competition after Head and Cervical Spine Injury”;
“Anatomy, Biomechanics, Diagnosis, and Management of Athletic Low Back Pain”
Sixth Annual Sports Medicine Update 91
Westford, MA

05/02/91 “Life-threatening Injuries to the Head and Neck”
Minnesota Academy of Family Physicians
Minneapolis, MN

04/24/91 “Catastrophic Spine Injuries in All School Sports (1982-1989)”
American Association of Neurological Surgeons
New Orleans, LA

04/12/91 “Low Back Pain: Etiology, Diagnosis, and Treatment”
National Sports Medicine Conference On The Beach
Halifax Medical Center
Family Practice Residency Program
Daytona Beach, FL

03/26/91 “Recognition and Management of Head Injuries”;
“Peripheral Nerve Entrapment”
American College of Sports Medicine Team Physician Course
Orlando, FL

03/24/91 “Cord and Peripheral Nerve”;
“Spinal Stenosis: How to Evaluate”;
“On-the-Field Management of Acute Spinal Cord Injury”
American College of Sports Medicine Team Physician Course
Orlando, FL

03/14/91 “Catastrophic Sports Injuries in High School and College Sports”
Massachusetts Association for Health, Physical Education, Recreation and Dance,
1991 Annual Convention
Randolph, MA

02/11/91 “Anatomy and Biomechanics of Athletic Cervical Spine & Head Injury”;
“Intraspinal and Extrapinal. Cervical Spine Injuries - Diagnosis and Management”
Second National Kaiser Permanent Sports Medicine Conference
Snowbird, UT

02/10/91 “Anatomy, Biomechanics, Diagnosis and Management of Low Back Pain”
Second National Kaiser Permanent Sports Medicine Conference
Snowbird, UT

02/01/91 “Spinal Stenosis: Identification and Therapy,”
Medical Staff Scientific Meeting
Emerson Hospital
Concord, MA

01/10/91 “Lumbar Spinal Stenosis: Evaluation and Treatment/ Surgical Indications”
Buffalo General Hospital Grand Rounds
Buffalo, NY

01/10/91 “Diabetes and Exercise”
Mercy Hospital Grand Rounds
Buffalo, NY

01/09/91 “How to Live Painlessly With Your Low Back Disorder”
South Town Physicians
Blasdell, NY

12/04/90 “Feeling Fit for Life”
Community Health Lecture Series
Emerson Hospital
Concord, MA

11/30/90 “Catastrophic Sports Injuries in High School and College Athletes”
American Medical Tennis Association
Palm Springs, CA

11/29/90 “Sports Medicine in Primary Care”
American Medical Tennis Association
Palm Springs, CA

11/26/90 “Neurologic Injuries: Assessment/Care at Scene of Injury”
Littleton Fire Department - EMT
Littleton, MA

11/17/90 “Epidemiology of Head Injuries in Sports and Return to Play Decision Making”
Swedish Hospital Medical Center
Spine Institute Fall Symposium
Seattle, WA

11/16/90 “Epidemiology of Spinal Cord Injuries and Assessment of Intraspinal Injuries in Sports”
Swedish Hospital Medical Center
Spine Institute Fall Symposium
Seattle, WA

11/07/90	“Steroid Abuse in the Athlete”; “Cranial and Cervical Injuries in Sports” Hahnemann. University School of Medicine Philadelphia, PA
11/03/90	“Sports Injuries to the Lower Extremities” <u>Nurse Practitioner Associates for Continuing Education National Primary Care Conference</u> Boston, MA
10/22/90	“Neurosurgical Athletic Injuries” <u>Congress of Neurological Surgeons</u> Los Angeles, CA
10/16/90	“Osteoarthritis Due to Sports-related Injuries” <u>Framingham Union Hospital Grand Rounds</u> Framingham, MA
10/12/90	“Sports Injuries and Low Back Pain” <u>Bethany Medical Conference</u> Bethany Medical Center Kansas City, KS
10/12/90	“Sports Injuries” Trinity Lutheran Hospital Kansas City, MO
10/11/90	“Prevention and Treatment of Catastrophic Sports Injuries” Kansas University Medical Center; Kansas City, MO
10/11/90	“Arthritic Low Back Pain” Topeka Veterans Administration Hospital Topeka, KS
10/11/90	“Low Back Pain - Management and Exercise of Diabetic Patients” Providence - St. Margaret’s Hospital Kansas City, KS
10/11/90	“How to Live Painlessly with Arthritic Low Back Pain” Shawnee Mission Medical Center Overland Park, KS
07/25/90	“Sports Medicine and Primary Care” <u>Omni Specialty Sports Medicine Update American Medical Tennis Association</u> Waterville Valley, NH
07/24/90	“Anabolic Steroid Abuse in Athletics” <u>Omni Specialty Sports Medicine Update American Medical Tennis Association</u> Waterville Valley, NH

07/23/90 “Catastrophic Sports Injuries in High School and College Sports”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH

07/14/90 “Management of Osteoarthritic Sports Injuries”
Health-in-Action Day
Stratton Mountain, VT

07/11/90 “Health Benefits of Exercise”
New England Correctional Center
Concord, MA

05/24/90 “Intracranial Athletic Cervical Spine Injury”
Symposium Co-chairman: Athletic Cervical Spine Injury
American College of Sports Medicine Annual Meeting
Salt Lake City, UT

05/24/90 “On-the-Field Evaluation of Head and Spine Injuries”
Clinical Workshop
American College of Sports Medicine Annual Meeting
Salt Lake City, UT

05/23/90 “Neck Pain - Soccer”
American College of Sports Medicine Annual Meeting
Salt Lake City, UT

05/23/90 “On-the-Field Evaluation of Head and Spine Injuries”
Clinical Workshop
American College of Sports Medicine Annual Meeting
Salt Lake City, UT

05/22/90 “Head Injuries in Sports: Biomechanics, Prevention, and Treatment”
Clinical Lecture
American College of Sports Medicine Annual Meeting
Salt Lake City, UT

05/07/90 Medical Resource for Breakout Medical Session
National Catastrophic Head/Spinal Cord Sports Injury Consensus Meeting
National Federation of State High School Associations
Kansas City, MO

05/04/90 “Catastrophic Sports Injuries”
Conference Chairman
Sports Medicine Update 90
Westford, MA

04/30/90 “The Athlete and the Neurosurgeon”
Breakfast Seminar Panel Chairman
American Association of Neurological Surgeons
Nashville, TN

04/23/90 “Diagnosis, Prevention, and Treatment of Athletic Spine Injuries”
Kaiser Permanente HMO
Holyoke, MA

04/18/90 “Burners/ Stingers /Cervical Spine Injuries”;
 “Concussions”
 First Annual Sports Medicine Conference on the Beach
 Halifax Medical Center
 Family Practice Residency Program
 Daytona Beach, FL

04/06/90 “Sports Medicine: Bridging the Gap”
 Penobscot Bay Medical Center
 Rockland, ME

04/05/90 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Eastern Maine Medical Center
 Bangor, ME

03/30/90 “Cervical and Low Back Pain: Diagnosis and Treatment”
 St. Vincent Hospital Family Practice Residency Program
 Erie, PA

03/30/90 “Catastrophic Sports Injuries”
 Hamot Family Practice
 Erie, PA

03/30/90 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Millcreek Community Hospital
 Erie, PA

03/29/90 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Aviation Country Club
 Erie, PA

03/23/90 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Hanscom Clinic - Hanscom Field Air Force Base
 Bedford,MA

02/09/90 “Catastrophic Football Spine Injuries; 1977-1988”
 Joint Section on Disorders of the Spine and Peripheral Nerves
 American Association of Neurological Surgeons
 Captiva Island, FL

02/03/90 “The Neurosurgeon and the Amateur Athlete”
 Downeast Association of Physician Assistants Winter Conference
 Bethel, ME

01/12/90 “Exercise for Health vs Fitness: How much is enough?”
 Community Health Lecture Series
 Emerson Hospital
 Concord, MA

10/24/89 “Adolescents and Anabolic Steroids”
 Pediatric Grand Rounds
 Baystate Medical Center
 Springfield, MA

10/17/89 “Prevention and Treatment of Spinal Injuries in Athletes”
St. Francis Health Care Foundation Endowed Lecture Series
St. Francis Hospital
Poughkeepsie, NY

10/04/89 “Steroids - The Threat and Dangers”
Massachusetts Interscholastic Athletic Association, Inc Annual Sports Injury Conference
Milford, MA

09/23/89 “Indications/ Contra-Indications For Surgery in the Arthritic Patient”
Health-in-Action Day
Nova Scotia, Canada

09/16/89 “Rehabilitation at Fitness Centers”
Sponsored by Nautilus Sports Medical Industries, Inc.
Vista International Hotel
Elizabeth, NJ

07/25/89 “Anabolic Steroid Abuse in Athletics”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH

07/24/89 “Catastrophic Sports Injuries in High School and College Sports”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH

06/13/89 “Case Presentations”
Monroe County Highland Hospital Grand Rounds
Rochester, NY

06/13/89 “Cervical and Low Back Spine”
Monroe County Highland Hospital Grand Rounds
Rochester, NY

06/12/89 “Cervical and Low Back Spine”
Sponsored by Monroe County Highland Hospital Physicians Assistants
Pittsford, NY

06/10/89 “Low Back Pain: Etiology, Diagnosis, and Treatment”
Sheehan Memorial Hospital
Buffalo, NY

06/10/89 “Low Back Pain: Etiology, Diagnosis, and Treatment”
Our Lady of Victory Hospital Grand Rounds
Lackawanna, NY

06/05/89 “Sports Medicine in Primary Care”
Williamsville, NY

06/05/89 “Sports Medicine in Primary Care”
Niagara Falls Memorial Hospital
Niagara Falls, NY

05/05/89 “Steroid Abuse in Athletics”
 Sports Medicine Update 89
 Westford, MA

04/28/89 “Cervical and Lumbar Osteoarthritis,”
 St. Anne’s Hospital Grand Rounds
 Fall River, MA

04/24/89 “Medical Management of Low Back Pain”
 Hunt Memorial Hospital
 Danvers, MA

04/12/89 “Nutrition and Exercise For the Senior Citizen”
 Trinitarian Church
 Concord, MA

04/10/89 “Prevention and Treatment of Athletic Spine Injuries”
 Sponsored by Cooley Dickinson Hospital
 Northampton, MA

03/17/89 “Chronic Low Back Pain”
 St. John’s Hospital Grand Rounds
 Lowell, MA

03/16/89 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Mercy Hospital
 Buffalo, NY

03/16/89 “Prevention and Treatment of Athletic Spine Injuries”
 Millard Fillmore Hospital Grand Rounds
 Buffalo, NY

03/15/89 “Low Back Pain: Etiology, Diagnosis, and Treatment”
 Blasdell, NY

03/02/89 “Common Sports Injuries”
 Youville Hospital
 Cambridge, MA

02/24/89 “Catastrophic Sports Injuries”
 6th Annual Office-Based Sports Medicine Conference
 Sun Valley, ID
 Sponsored by University of California School of Medicine at San Francisco

02/24/89 “When to Return to Contact Sports After a Concussion”
 6th Annual Office-Based Sports, Medicine Conference
 Sun Valley, ID
 Sponsored by University of California School of Medicine at San Francisco

02/24/89 “Athletic Low Back Pain”
 6th Annual Office-Based Sports Medicine Conference
 Sun Valley, ID
 Sponsored by University of California School of Medicine at San Francisco

02/22/89 “Acute and Chronic Brain Injuries in Boxing and Other Collision Sports”
6th Annual Office-Based Sports Medicine Conference
Sun Valley, ID
Sponsored by University of California School of Medicine at San Francisco

02/22/89 “On-the-Field-Management of Athletic Head and Spine Injuries”
6th Annual Office-Based Sports Medicine Conference
Sun Valley, ID
Sponsored by University of California School of Medicine at San Francisco

02/08/89 “Osteoarthritis of the Lumbar Spine”
New Britain Hospital Grand Rounds
New Britain, CT

02/08/89 “Sports Medicine In Primary Care”
Stamford Hospital Grand Rounds
Stamford, CT

02/07/89 “Feeling Fit After Forty”
Community Health Lecture Series
Emerson Hospital
Concord, MA

02/03/89 “Osteoarthritis of the Lumbar Spine”
Harvard Community Health Plan
Braintree, MA

01/20/89 “Catastrophic Injuries in High School and College Athletes”
The Second International Symposium on the Prevention of
Catastrophic Sports and Recreational Injuries to the Spine and Head
Toronto ,Canada

01/19/89 “Head Injuries: The Experience in the United States”
The Second International Symposium on the Prevention of
Catastrophic Sports and Recreational Injuries to the Spine and Head
Toronto, Canada

01/18/89 “Steroid Abuse in Athletics”
Sports Medicine Symposium Connecticut State Medical Society
Choate School
Wallingford, CT

01/17/89 “Catastrophic Sports Injuries”
Connecticut State Medical Society
Cheshire, CT

01/11/89 “Diagnosis and Treatment of Degenerative Cervical and Lumbar Spine Disease”
Henry Heywood Hospital Grand Rounds
Gardner, MA

01/11/89 “Athletic Low Back Pain”
Sports Medicine Systems
Newton, MA

12/20/88 “Low Back Pain”
Milford-Whitinsville Regional Hospital Grand Rounds
Milford, MA

12/10/88 “Head and Neck Injuries in Sports”;
“On-the-Field Management of Head and Neck Injuries”
American Physical Therapy Association
Hilton Head Island, SC

11/21/88 “Women and Sports - Special Concerns”
The Daisy Flour Mill
Rochester, NY

11/21/88 “Sports Medicine In Primary Care”
Genesee Memorial Hospital Grand Rounds
Batavia, NY

11/11/88 “Which Sports Are At Greatest Risk and What Is Being Done”;
“Sports Medicine-Sports Science: Bridging the Gap”
Kent County Hospital Grand Rounds
Warwick, RI

10/28/88 “Osteoarthritis Due To Spinal Injuries”
Cutler Army Hospital Grand Rounds
Fort Devens, MA

10/07/88 “Health Enhancement Through Physical Conditioning”
Concord Fitness Club
Concord, MA

10/05/88 “Head and Neck Injuries”
Sports Medicine Workshop
Buxborough, MA

09/29/88 “Arthritic Low Back Pain”
Health-In-Action Day
Boston, MA

09/22/88 “Prevention and Recognition of Athletic Head and Spine Injuries”
Sports Medicine Update: Prevention and Treatment of Fall Sports Injuries
Albany Medical College
Albany, NY

09/13/88 “Emergency Care of the Injured Athlete”
Littleton Junior-Senior High School
Littleton, MA

08/12/88 “Osteoarthritis and Sports Injuries”
Brockton Hospital Grand Rounds
Brockton, MA

- 07/27/88 “Catastrophic Sports Injuries”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH
- 07/26/88 “When To Return To Contact Sports After A Head Injury”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH
- 07/25/88 “Prevention of Athletic Spine Injuries”
Omni Specialty Sports Medicine Update American Medical Tennis Association
Waterville Valley, NH
- 06/24/88 “The Diagnosis and Treatment of Degenerative Cervical and Lumbar Spine Disease”
Binghamton General Hospital Grand Rounds
Binghamton, NY
- 06/24/88 “Low Back Pain: Etiology, Diagnosis, and Treatment”
Binghamton, NY
- 06/23/88 “Athletic Catastrophic Sports Injury Study (1931-1987):
Which Sports Are At Greatest Risk and What Is Being Done To Reduce Injury”
Binghamton, NY
- 06/17/88 “Osteoarthritis - As It Relates To Sports Injuries”
St. John’s Hospital Grand Rounds
Lowell, MA
- 06/10/88 “Catastrophic Sports Injuries: Which Sports Are At Greatest Risk
and What Is Being Done To Reduce Injury”
Sports Medicine Update ‘88
Westford, MA
- 05/31/88 “Head and Neck Injuries in Rugby”
International Conference on Rugby Injuries
Boston, MA
- 05/28/88 “Sudden Death - Ice Hockey”
American College of Sports Medicine Annual Meeting
Dallas, TX
- 05/28/88 “Catastrophic Sports Injuries: Which Sports Are At Greatest Risk
and What Is Being Done To Reduce Injury”
American College of Sports Medicine Annual Meeting
Dallas, TX
- 05/27/88 “Discogenic Low Back Pain”
American College of Sports Medicine Annual Meeting
Dallas, TX
- 05/26/88 “Cervical Spine Evaluation”
Clinical Workshop
American College of Sports Medicine Annual Meeting
Dallas, TX

05/26/88 “Headache and Convulsion - Aerobic Exercise”
Clinical Lecture
American College of Sports Medicine Annual Meeting
Dallas, TX

05/25/88 “When to Return to Contact Sports After a Cerebral Concussion”
Tutorial Lecture
American College of Sports Medicine Annual Meeting
Dallas, TX

04/28/88 “Football Catastrophic Sports Injury Experience 1987”
Sports Medicine Section
American Association of Neurological Surgeons
Toronto, Canada

04/25/88 “When to Return to Contact Sports After Head Injury”
Panel Chairman: Breakfast Seminar
American Association of Neurological Surgeons
Toronto, Canada

03/24/88 “High School and College Catastrophic Sports Injury Survey:
Which Sports Are At Greatest Risk and What is Being Done To Reduce Injury”
Drake University Sports Medicine Conference
Des Moines, IA

03/24/88 Returning to Action After a Head Injury”
Drake University Sports Medicine Conference
Des Moines, IA

03/10/88 “Catastrophic Injuries in High School and College Athletes”
Writer’s Conference American College of-Sports Medicine
New York, NY

03/05/88 “Return to Contact Sports After a Cerebral Concussion”
Fitness in Sports Fourth Annual Conference
Fort Worth, TX

02/09/88 “Feeling Fit After Forty”
Community Health-Lecture Series
Emerson Hospital
Concord, MA

01/31/88 “Update on Field Management of Head and Neck Injury”
1988 Lake Placid Sports Medicine Conference
Lake Placid, NY

01/30/88 “Concussion in Athletes”
1988 Lake Placid Sports Medicine Conference
Lake Placid, NY

11/06/87 “Head, Neck, and Back Injuries”
American College of Sports Medicine, New England Chapter
Worcester, MA

11/04/87 “Low Back Pain”
Nashoba Community Hospital Grand Rounds
Ayer, MA

09/20/87 “When to Return to Contact Sports After a Head Injury”
New Hampshire Medical Society
Mt. Washington, NH

08/07/87 “When to Return to Contact Sports After a Cerebral Concussion”
Community Health Lecture
Emerson Hospital
Concord, MA

08/03/87 “Comparison of Exercycle and Monark Bicycles: Maximal Oxygen Uptakes”
Exercycle Corporation
Newport, RI

07/28/87 “New Concepts in the Treatment of Spinal Injuries”
Symmes Hospital Grand Rounds
Arlington, MA

06/05/87 “When to Return to Contact Sports After a Cerebral Concussion”
New England Neurosurgical Society
Cambridge, MA

05/29/87 “On-Site Evaluation of Head and Spine Injuries”
Clinical Workshop
American College of Sports Medicine Annual Meeting
Las Vegas, NV

05/29/87 “Acute and Chronic Brain Injury in Contact Sports:
Historical Perspective and Overview”
American College of Sports Medicine Annual Meeting
Las Vegas, NV

05/29/87 “Acute and Chronic Brain Injury in Contact Sports”
Symposium Chairman
American College of Sports Medicine Annual Meeting
Las Vegas, NV

05/08/87 “Role of the Neurosurgeon In Sports Medicine”
Panel Chairman: Breakfast Seminar
American Association of Neurological Surgeons
Dallas, TX

05/01/98 When to Return to Contact Sports After a Cerebral Concussion
Sports Medicine Update '87
Westford, MA

04/24/87 “Extracranial Vascular Disease - The Carotid Endarterectomy Controversy”
Primary Care in Stroke: Putting the Puzzle Together
Westford, MA

- 04/06/87 “Brain Injuries In Football and Boxing - Can They be Prevented?”
Hot Topics in Sports Medicine and Sports Science ‘87
New York, NY -
- 02/27/87 “Medical Aspects of Boxing”
American College of Sports Medicine Clinical Conference
Keystone, CO
- 02/26/87 “Discogenic Disease - Surgical and Non-Surgical Approaches”
American College of Sports Medicine Clinical Conference
Keystone, CO
- 02/24/87 “Concussion - What Is It?: Guidelines for Returning to Sports”
American College of Sports Medicine Clinical Conference
Keystone, CO
- 02/23/87 “Acute and Chronic Brain Injury and Contact Sports”
American College of Sports Medicine Clinical Conference
Keystone, CO
- 01/08/87 “Guidelines for Return to Contact Sports After a Cerebral Concussion”
International Symposium on the Prevention of Catastrophic Sport, and Recreational Injuries to the Spine and Head
Toronto, Canada
- 01/07/87 “The Activities Leading to Head Injury”
International Symposium on the Prevention of Catastrophic Sports and Recreational Injuries to the Spine and Head
Toronto, Canada

³² P. McCrory, et al., Consensus Statement on Concussion in Sport: The 3rd International Conference on Concussion in Sport held in Zurich, November 2008, 43 (Suppl I) BRIT. J. SPORTS MED., i76-i84, i78 (2009).

³³ NCAA10140278.

CERTIFICATE OF SERVICE

The undersigned, an attorney, hereby certifies that on July 28, 2014, a true and correct copy of the foregoing was filed electronically via CM/ECF, which caused notice to be sent to all counsel of record.

By: /s/ Steve W. Berman